CA1
FS
-32576

Government
Publications

Government
Publications

CA1
FS
-32576

Government
Publications

CANADA

SUMMARY OF REPORT

ON THE

MARKETING OF CANADIAN FISH AND FISH PRODUCTS

TO

THE HONOURABLE E. N. RHODES
MINISTER OF FISHERIES

BY

COCKFIELD, BROWN & COMPANY LIMITED

MONTREAL, TORONTO, WINNIPEG, VANCOUVER

OTTAWA
F. A. ACLAND
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1932

Price, 25 cents

CA1
FS
-32S7E

CANADA

SUMMARY OF REPORT

ON THE

MARKETING OF CANADIAN FISH AND FISH PRODUCTS

TO

THE HONOURABLE E. N. RHODES
MINISTER OF FISHERIES

BY

COCKFIELD, BROWN & COMPANY LIMITED
MONTREAL, TORONTO, WINNIPEG, VANCOUVER

364463
28. 3. 39.

OTTAWA
F. A. ACLAND
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1932

Digitized by the Internet Archive
in 2022 with funding from
University of Toronto

https://archive.org/details/summaryofreporto00cana

TABLE OF CONTENTS

		Page
Chapter	I—Introduction	5
Chapter	II—A Composite Approach to the Fisheries Problem of the Dominion	9
Chapter	III—Factors Tending to Limit Domestic Consumption of Fish	14
Chapter	IV—The Catching of Fish and Its Bearing on the Problem	18
Chapter	V—The Fish Canning Industry	22
Chapter	VI—Fish Curing	27
Chapter	VII—Fish Reduction	29
Chapter	VIII—The Market for Fresh Fish	30
Chapter	IX—The Market for Canned Fish in Canada	35
Chapter	X—The Market for Smoked, Pickled, Dried and Salted Fish	37
Chapter	XI—Cold Storage	39
Chapter	XII—Quick Freezing and Packaging	41
Chapter	XIII—Transportation	46
Chapter	XIV—Fish Inspection	53
Chapter	XV—Distribution	55
Chapter	XVI—Fish Merchandising and Advertising	60
Chapter	XVII—Conclusions	65
Chapter	XVIII—Recommendations	80

Marketing of Canadian Fish and Fish Products

CHAPTER I—INTRODUCTION

Objective

This survey was authorized by Order in Council (P.C. 2595). Its purpose may be summarized as follows:—

"To ascertain ways and means of increasing the consumption of Canadian fish, particularly within the Dominion, but also in foreign markets;" and to make "Recommendations as to policy, particularly such as may serve the Department of Fisheries in actively assisting the Canadian fishing industry, along sound and constructive lines, to achieve the maximum degree of efficiency."

Although the emphasis of the first excerpt is specifically on consumption and the means of increasing it, the second implies the necessity of discovering, constructing and indicating a consistent and comprehensive policy for at least the partial economic integration of the Canadian Fishing Industry. Since the degree to which the latter purpose is fulfilled would solve to that extent the consumption and marketing problems in both domestic and external markets, it is clear that co-ordination of effort, organizataion and activity in the fisheries of the Dominion, and in the processing and distributive systems which depend upon them, is the central objective of the survey.

Order of Treatment in Report Explained

The sequence of chapters and appendices has adhered to a consistent and well-defined plan. This plan consists of the following principles:—

(*a*) That the eighteen chapters of the report proper shall contain only material which has a bearing on practical policy and the logical development of such policy. All statistical and other material, which does not contribute to an understanding of the problem itself, or of the necessary measures by which such problem may be tackled, has been rigidly excluded.

(*b*) That the argument as contained in these chapters shall lead uninterruptedly from the problem itself through analysis and interpretation to the recommendation of action.

(*c*) That the argument, conclusions and recommendations shall be directed solely by considerations of the public interest, and not by those of any geographical, occupational or industrial section. Although due attention has been paid to the claims and functions of the fishermen—the producing, distributing, canning and other companies, groups and other associations—and of the wholesale and retail fish trade—yet these have been balanced against the requirements and rational interests of the consuming public and of those industries engaged in the production and sale of perishable foods which compete directly or indirectly with fish.

(*d*) That such supporting evidence, as would confuse the main issue, but which may prove useful in the understanding of certain specific details and local situations, shall be appended in separate volumes. This applies to Appendix B, *et seq.*

41999—2½

(*e*) That only such charts and illustrations shall be included as may aid in the understanding of the text, in gaining a true perspective of the problem as a whole and of its main divisions, or in appraising the geographical extent of the survey (the latter being limited to maps contained in this chapter).

Scope, Almost Unlimited but Focussed on Marketing

The general and topical scope of the investigation, as set forth in the Order in Council, may be summarized as follows:—

(1) Canadian consumer tastes, prejudices, preferences and requirements with regard to fish.
(2) Retail and wholesale distribution and the collection of facts, opinions, etc., from the fish trade.
(3) The transportation, and quick-freezing of fish, in relation to marketing.
(4) The industries engaged in the canning or processing of fish.
(5) Export markets and current fish merchandising and advertising practice in certain other countries (original list in each case materially expanded).
(6) Correlation of fish information with that of other industries particularly those engaged in the marketing of food.
(7) Conclusions and recommendations.

This original topical scope has been considerably expanded, and such additions are justified as falling within the terms of reference on the grounds that they represent " other problems (arising) in the course of the investigation which would require special attention," and also as pertaining to " the marketing of catches from the Atlantic, Pacific and Great Lakes (other lakes subsequently included), fisheries, respectively, at every stage from fisherman to consumer."

These additional items, which it has been found impossible to overlook in presenting an adequate statement of the marketing of Canadian fish and fish products are, in part, as follows:—

(8) The various food inspection acts and the degree of their enforcement with regard to fish.
(9) Cold storage.
(10) Questions concerning bait.
(11) Conservation, only in so far as the measures for enforcing it appear to conform or not to conform to the most economical systems of catching processing or marketing of fish.
(12) Such proposed aids to fishermen as have been presented to us by representatives of the fishermen themselves as well as by others. It has been realized that a possible danger existed of exceeding the terms of reference in this case, and therefore such treatment as has been given to material of this nature should adhere closely to the subject of the survey, namely marketing.

The investigators point out that the functions of their firm are solely those of marketing, merchandising and advertising specialists. In the many ramifications of the fishing industry and distributing organization which they have undertaken to examine, they are not concerned with conditions or problems of a social, mechanical or political nature, except in so far as these may have a definite bearing in the attainment of more effective, economical and regular marketing of Canadian fish and fish products, the creation of a wider demand for them, and a more general appreciation of their utility.

Methods by which Information was Secured

No public meetings were held and no formal demands for information were made. It was not within the power of the investigators to do so. All informa-

tion received was of a voluntary nature and was accompanied by the customary undertaking not to reveal the particular source of information in each case, except when specifically authorized to do so by the informant. Extensive personal interviews were carried out among various classes of consumers, retail dealers, restaurants, institutions of various types and the wholesale trade. A number of representative leaders in fishermen's organizations as well as of producing and shipping interests were similarly interviewed.

Outlying places where fish are caught were covered by mail from extensive lists supplied by the Department of Fisheries. Fishermen's organizations, producing interests, fisheries inspectors and other officers were invited to submit facts and opinions on specified topics. Special enquiries were conducted in connection with refrigeration problems, and engineering, legal and other professional advice was obtained on this and additional technical phases. Permanent officials concerned with fishery matters in each province were consulted, even when jurisdiction in such matters did not pertain to them.

The Commercial Intelligence Service of the Department of Trade and Commerce conducted a comprehensive survey of external markets through the Canadian Trade Commissioners and submitted the reports for consideration. Conclusions drawn from them, together with information on export markets and merchandising practice in other countries, procured by the investigators from their own connections have been embodied in the report proper.

A critical analysis has also been made of local and national advertising of fish in the Dominion and certain export markets, particularly Great Britain and the United States.

An Appraisal of the Information Received and Used

The primary sources upon which this report is based, consisting largely of memoranda on observations and interviews and of replies to mailed questionnaires, are represented by over 40,000 pages of evidence.

Exclusive of the places from which information was secured on external markets and merchandising practice, the domestic survey by personal investigation was conducted at and in the vicinity of 140 centres, divided as follows:—

Centres of 25,000 population and over	16
Centres of from 5,000 to 25,000 population	46
Centres of under 5,000 population	78

Returns from the mailed inquiries were received from 246 places, the largest provincial coverage being in Nova Scotia (93).

Definition of Certain Terms Used

Where the term " institutions " is used, this implies institutions proper such as hospitals, schools, etc. Eating places have been separated into two classes, cafes and restaurants, the distinction being that places catering to less than 250 persons at a meal are classed as cafes and those catering to a larger number than this have been classified as restaurants, the latter including hotel dining rooms serving 250 or more persons.

Methods of Analysis and Synthesis

The results of the consumer returns have been weighted by the relative proportion of each general income class (i.e., labouring class, middle or semi-professional class, and higher professional class, including business executives, etc.), in each economic area, in order to compute the total for the area and by the proportion of the population of each area in order to compute the total for the Dominion.

No weighting has been used for retail, wholesale, institution and restaurant returns. Care, however, has been taken in determining the quota that the right proportions should be interviewed in each area.

The synthesis of the unwieldy mass of data received has proved equally as difficult a matter as the collection and analysis of such data. Each group of facts had to be shown in their relation to other groups, and to the problem as a whole.

Report Should be Regarded as Indivisible Unit.

Although certain minor details may be subject to limited revision in the light of other or further experience, the main facts and findings are substantially consistent, and the importance of their relationship is such as to demand that the report be regarded as an indivisible and interdependent unit.

The report contains sixty-seven illustrations and graphs for the purpose of making the text more clearly understood.

The investigators state that the report is submitted as an impartial critical analysis and interpretation—stripped of irrelevancies and aimless contradictions but with pertinent information—prepared by independent persons not engaged commercially in the catching, processing or distribution of fish—of facts, gathered from every available and useful source, from each division of the industry, and from all interests concerned with the production, preservation, marketing and consumption of Canadian fish and fish products—ending with the presentation of conclusions which aim at placing the Canadian fishing industry and trade in a position of self-reliance and efficiency—at stimulating domestic and foreign consumption of its products—and which recommends such governmental action and assistance as may, in the general public interest, contribute to the attainment of these objects.

CHAPTER II—A COMPOSITE APPROACH TO THE FISHERIES PROBLEM OF THE DOMINION

Before the Canadian fishing industry can hope profitably to conquer and retain its external markets, which now take the bulk of its output, it must be able to hold its own in the domestic sphere, and use this sphere as a means for the experimental development of the highest standards of production, processing and marketing technique.

The present chapter, therefore, deals chiefly with the means by which, and the bases from which, the internal problem may be approached, with only incidental reference to the wider and more remote question of applying these improved standards to the profitable extension of Canada's export trade in fish and fish products. It collates and summarizes the significant statistics of production, imports, and exports, proceeds to a comparison of the per capita consumption of fish in Canada with that in certain other countries, continues with an analysis of the frequency with which fish is used in the various economic areas of the Dominion, by different income classes, by institutions, cafes and restaurants, and concludes with a brief statement relative to conservation and supply which has an important bearing on the final issue.

Relative Place of Fisheries in the Economic Life of the Dominion.

The production of all Canadian fisheries, relative to population (120 pounds approximately), is more than five times that of the fisheries of the United States, relative to their population (23 pounds). The Canadian industry not only bulks very largely in the economic life of the Dominion, but its natural function as a source of supply for the deficiencies of its neighbour is clearly and strikingly demonstrated.

The fishing industry is of unusual complexity. Not only are there innumerable species in the catch, but the species are caught only in certain localities and at certain seasons, some are in great demand and others are inedible by human beings. The great majority are subjected to processes which are directed to satisfy the demands of particular markets. The changing tastes of a market may cause intense dislocation among the fishermen of a whole district, and this is particularly true when the change is accompanied by a fall in prices. The prosperity of Canadian fishermen, of whom there are, in the primary and secondary branches, more than 80,000, depends not only upon an adequate catch, but also upon the profitable disposal of the fish when caught. Though the value of fish and fish products exported from the Dominion amounts to approximately 70 per cent of that of the total production (more than 80 per cent of the tonnage), yet it is logical, in seeking to find a method of stabilizing the industry, to consider chiefly the home market. This is due partly to the fact that the producer and consumer are more closely in touch with each other, but chiefly to the freedom from outside competition. Canada, of course, with a total population of approximately ten million persons, cannot afford a sufficiently large market for the present and potential production of Canadian fisheries. Since, however, the present per capita consumption is low, any appreciable increase of the existing consumption would largely contribute to bring the industry to a more prosperous condition, in spite of the fact that as soon as the market or prices improve, additional fishermen are always attracted into the business.

Value of Fish Produced in Canada.

In the last ten years the low point of value of fish and fish products marketed was in 1921—$34,931,935. The peak was reached in 1926—$56,360,633. The value declined in 1927, and rose again in 1928. It fell in 1929. The price index of fish and fish products rose steadily from 1923 to 1929. It was 83·6 in the former year and 105·6 in the latter year. In 1930, however, it showed a ten point drop.

Growth in Value of Inland Fisheries.

At the beginning of the last ten-year period the sea fisheries accounted for approximately 90 per cent of the total value. The value of the inland fisheries has increased to such an extent that the proportion is now nearer to 80 per cent.

Value of the Fisheries of the Various Provinces.

British Columbia makes a larger contribution than any other province to the fisheries of the Dominion. Considerably more than half the fish from the Atlantic coast come from Nova Scotia and approximately one quarter from New Brunswick. There is evidence of a net decline in the value of the Prince Edward Island fisheries. The fisheries of the province of Quebec have also tended to decline in value in recent years.

The outsanding feature of the inland fisheries is the increase of production in the Prairie Provinces due mainly to the opening up of new lakes, better transportation facilities and larger catches of such fish as trout and whitefish. In 1922 the value of the fisheries of the Prairie Provinces amounted to $1,495,499, whereas in 1929 it reached $4,075,095. In 1930, however, a sharp reduction occurred in the Prairie Provinces. The value of the fisheries of Ontario shows fluctuations with no general tendency apparent.

Salmon Leads Other Species in Production Value.

Approximately one-third of the total value of the fish production in the Dominion is accounted for by salmon. Cod and lobster follow each with one-third the value of that of salmon. The halibut fisheries come next, while herring takes fifth place, followed by whitefish. The value of haddock has increased in the last ten years from $899,629 in 1921 to $1,951,642 in 1929. In 1930, however, the effect of lower prices was visible.

Exports of Fish and Fish Products.

The period, 1926-1930, represents the height of exports with an average value of $37,000,000. Normally, canned fish constitutes the larger proportion of the exports. In the last ten years on the average it amounted to 37 per cent of the total. Fresh fish accounted for 30 per cent, salted, dried, etc., 28 per cent and other fisheries products, mainly fish oil and meal, 4 per cent. The value of canned fish exports has declined since 1926 from $15,000,000 in round figures to $10,000,000 in the year ending March, 1931. Exports of fresh fish show a steady increase in value up to the year 1931, when there was a check. Exports of dried, salted, etc., fish reached their peak in 1926; a serious decline did not occur, however, until 1931. The most noteworthy increase has been in fish oil and meal, due mainly to the development of pilchard oil and meal on the Pacific coast. In 1922 its value was $306,000, but in 1929 it had increased to over $3,000,000. In the last two years values have declined.

Fish Imports

There appears to have been a steady increase in the value of imported fish and fish products from 1926 to 1929, after which the value appears to have declined. Of fish imported since 1921 canned products comprise, on the average,

34 per cent of the total; salted, dried, etc., 26 per cent; fresh fish, 25 per cent; and other fisheries products, 15 per cent. In the last three years there appears a declining tendency in the imports of salted, dried, etc., while canned products have increased except for an evident decline in 1931. Imports of other fisheries products have also tended to be heavier in recent years.

The following table shows the proportion of the various types and species of fish imported in the fiscal years 1930-31:—

	1930 Per cent	1931 Per cent
Fresh—		
Oysters (other than for breeding)	11·0	12·1
Halibut	3·9	4·3
Salmon	2·8	5·8
Cod, haddock, and pollock	1·3	1·0
Squid	1·0	0·7
Live fish and eggs	0·5	0·5
Herrings	0·3	0·1
Lobsters	0·2	0·1
Mackerel	0·2	0·2
Oysters (for breeding)	0·2	0·1
Others	5·1	5·5
Total fresh or frozen	26·5	30·4
Salted, Dried, etc.—		
Cod, haddock and pollock	10·0	10·6
Herrings	8·3	11·2
Salmon	0·6	1·1
Dried fish, n.o.p.	2·3	2·0
Fish, all other, pickled or salted	2·9	2·0
Fish, all other, smoked or boneless	0·4	0·3
Total salted, dried, etc	24·5	27·2
Fish, Preserved or Canned—		
Sardines	22·0	20·1
Lobsters	2·9	3·0
Herrings	2·4	1·1
Oysters, canned	1·3	0·9
Oysters, prepared or preserved	0·4	0·2
Salmon	2·9	0·5
Fish, preserved in oil, n.o.p.	2·6	2·7
Fish, prepared or preserved, n.o.p.	14·5	13·9
Total preserved or canned	49·0	42·4
Grand Total	100·0	100·0

In these two years Newfoundland supplied 23 per cent of the imports of fresh fish, seven per cent of the imports of canned fish and 57 per cent of the salted, dried, etc. The dried cod, haddock and pollock was almost entirely for re-export.

Little Variation in Annual Apparent Consumption

It would appear that the value of the apparent consumption of fish in the Dominion was highest in 1926. In 1927 a decrease occurred in the Canadian fish consumed at home, although imports were high. Exports normally account for nearly 70 per cent of Canadian production. On the other hand, of the apparent consumption in the Dominion imports usually amount to less than 20 per cent.

Price fluctuations were negligible between 1926 and 1929, but the effect of the decline in 1930 is clearly apparent; though the value of consumption declined yet the volume expressed in terms of the changing prices was higher than in 1929. As a whole it appears that the volume is subject only to minor fluctuations.

One-third of Canned Fish Fish Consumption Imported.

It is shown that in 1929 47 per cent of the fresh or frozen fish produced in Canada was exported, and 76 per cent of the canned fish. Of the apparent consumption of fresh fish in the same year imports formed seven per cent, while 30 per cent of the canned fish was imported.

Comparative Per Capita Consumption of Fish.

The annual consumption of fish in Canada has been computed to amount to 20·7 pounds per capita. In the United Kingdom it is double that amount; in the Netherlands it is 55 pounds; in Norway, 70 pounds, Germany consumes 21 pounds per capita; Ireland, 9 pounds; the United States in general, 16 pounds, but in New York it is 30 to 35 pounds per capita; in Argentina 10 pounds and in British Honduras two pounds; in the West Indies it is 33 pounds per capita in Barbados and 30 to 35 in Cuba; in Australia it is 13 pounds.

Number of Meals Per Month Served in Canada.

It is computed that the average Canadian family eats fish at 8·8 meals per month; fresh fish at 4·9 meals; canned at 2·7 and smoked, etc., at 1·2.

Comparative Consumption by Geographic Areas.

The Maritime Provinces are the heaviest fish eaters. There fish is served 11·7 meals a month by the average family; in Ontario it is served at 9·2 meals; in British Columbia at nine meals; in Quebec it is served at eight meals; and in the Prairie Provinces at 7·9. The number of meals at which fresh fish is served varies according to geographical position—in the Prairie Provinces it is 4·1; in British Columbia, 4·9; in Ontario, 4·5; in Quebec, 5·6; and in the Maritime Provinces, 6·3. Canned fish is served most frequently in Ontario. There the figure is 3·5 meals a month; in the Prairie Provinces it is 2·8; in British Columbia, 2·7; in the Maritime Provinces, 2·1; and in Quebec, 1·7. Quebec uses less smoked fish than any other area. It is served only at 0·7 meals a month. Only in the Maritime Provinces is smoked, etc., fish, which includes cured fish, found to be of considerable popularity. There it is served at 3·3 meals a month.

There is not much difference as between the three income classes. The third, or artisan, class serves fish at nine meals a month; the first class at 8·9 meals and the second class at 8·5 meals. Canned fish is consumed by the first class at three meals a month, by the second at 2·9 and by the third at 2·6. The consumption of smoked, cured fish by the third class is at 1·3 meals a month, by the second at 1·0 and by the first at 0·9.

Differences between the frequency of meals at which fish is served and between the types of fish used appear to depend almost entirely on geographical location and not upon the variation in purchasing power between the different classes in each area. It is true that in every area except Ontario the first class uses more fresh fish than the other two; and the same applies to canned fish except for Ontario and Quebec, but the variations between equivalent classes in different areas are far more pronounced than the variations between the three classes in each area.

Number of Meals Served Weekly in Restaurants, Institutions and Cafes

Restaurants catering to more than 250 persons serve 17·3 meals a week of fresh fish, while cafes serve 11·4 and institutions 1·6. The same situation is true of smoked, pickled, dried or salted and of canned fish. Geographically the number of meals served in restaurants is in British Columbia 13·5 a week; elsewhere the number varies between 16·5 in the Maritime Provinces and 18·1 in the Prairie Provinces. On the other hand cafes in British Columbia serve it

at 15·7 meals, while in Quebec it is served at not more than 8·9 meals, the average for the Dominion being 11·4. In institutions it is used at 2·1 meals in the Maritime Provinces, in 1·6 in the western areas and in 1·2 in Quebec.

Smoked fish is served by restaurants with increasing frequency from east to west, being 2·5 a week in the Maritime Provinces to 12·0 in British Columbia. In cafes and institutions also it is served most often in British Columbia.

Canned fish is served by restaurants at 8·5 meals a week, by cafes at 3·6 and by institutions at 0·6. Cafes and restaurants in the four western provinces serve it most frequently. The frequent use of canned fish in restaurants is attributable to its convenience in salads, sandwiches and other preparations.

It appears that 45 per cent of the cafes and 65 per cent of the restaurants serve table d'hote fish meals, the highest proportions in the case of cafes being found in British Columbia, Ontario and Quebec, and in the case of restaurants in the Maritime Provinces and Ontario. Table d'hote meals are well received by 82 per cent of the cafes and 89 per cent of the restaurants serving this type of meal. Thirteen per cent of the cafes and two per cent of the restaurants report poor reception.

Conservation and Limitation of Supply.

Before we can determine the extent of the market for Canadian fish, the technique of processing and distributing raw material to this market and the methods by which it is to be exploited, it is necessary to know the supply of raw material which should be available. Since conservation does not specifically lie within the scope of this survey, certain general principles which should guide public policy in this regard are indicated.

One fact is clear both to the biologist and the economist, namely, that the conservation problem is much more a Pacific than an Atlantic one. Therefore, future development in the scale, but not necessarily in the profitable and successful integration, of the industry, may be expected and provided for, more surely in the Maritime Provinces and Quebec than in British Columbia. Furthermore, the Pacific salmon and halibut divisions (etc.) will be among the first to gain from any substantial increase in demand for fish in this country or on this continent, for the very reason that their supply is definitely limited.

41999—3½

CHAPTER III—FACTORS TENDING TO LIMIT DOMESTIC CONSUMPTION OF FISH

This chapter contains an analysis of the factors which tend to keep the consumption of fish low, and of the suggestions made to increase it by various classes of persons connected with the industry.

Reasons for not Eating More Fish

The answers to the question put to consumers as to why they do not eat more fish showed that over one-third believe that they eat enough as it is on the basis of a balanced diet. Dislike of fish was advanced by 20·2 per cent of consumers, and whether by economic areas or income classes the proportion subscribing to it varies little, so that in any class or in any area there is one family out of five which has an active dislike of fish. The difficulty of getting good fish was raised by 11 per cent. In Quebec this percentage was 16. In the Prairie Provinces and Ontario this was reported more frequently than on the two coasts. The cost of fish as a deterrent from buying more was advanced by 11 per cent of the third class consumers; 10 per cent of the second and six per cent of the first class. The highest percentage (19) is found in the Prairie Provinces but the figure decreases until in the Maritime Provinces it is only one per cent. In British Columbia it is noted by 11 per cent which is said to be due to the retail prices of salmon and halibut not being low as compared with the fish forming the bulk of the Atlantic catch.

Nineteen per cent of the consumers object to the bones in fish. (It is pointed out that greater popularity of the fillet would offset this disadvantage.) Dislike of the flavour was mentioned by 18 per cent, and of the odour by 13 per cent. That fish is usually not fresh was given as the reason by 12 per cent.

Of institutions such as hospitals and schools 42 per cent report a general dislike of fish; of cafes 26 per cent, and of restaurants 23 per cent. The reasons most frequently given were:—

The flat taste of fish.
The fact that fish is often not fresh.
Preference for meat.
Difficulty in cooking.
The effect of religious observances.
And the odour.

Expense of Fish Meal as Compared with Meat Meal

The weighted average of replies in this connection shows that the balance of opinion is slightly in favour of fish as more economical. The variations by economic areas correspond with the relative consumption of fresh fish. In the Prairie Provinces 55 per cent regard fish as more expensive; the proportion diminishes eastward, 39 per cent being of this opinion in Ontario, 26 per cent in Quebec and 10 per cent in the Maritime Provinces. In British Columbia the proportion is 36 per cent, this relatively high figure being due to the kind of fish consumed. With regard to the consuming classes, the fish meal is considered more expensive than the meat meal by 34 per cent of the first class, 38 per cent the second and 36 per cent of the third.

Retail Prices the Chief Factor

Retail prices are given as the reason for the greater expense of fish by nearly half of those believing this to be true. Some of the reasons were:—

The cooking and serving of fish involves many extra items.
There is considerable waste in preparation.
Only expensive fish is purchased.
Transportation increases the price (reported only from the four western provinces).

To sum up, it appears that 17 per cent of the consumers believe that retail prices of fish are higher than those of meat, while the converse is reported by 21 per cent.

Retailers' Opinion

Almost three out of four dealers interviewed and questioned (leaving out specialized fish stores) favour the handling of meat. Of the independent butchers or grocers, 75 per cent prefer to handle meat; 69 per cent of the chain stores and 82 per cent of the department stores. By areas it was found that in British Columbia every dealer favoured meat; in the Prairie Provinces, 89 per cent; in Ontario, 76 per cent, and in the Maritime Provinces, 79 per cent. In the province of Quebec 62 per cent stated that they prefer to handle fish.

The main reason given by those retailers who prefer to handle fish is that a greater profit is made on fish. This is reported more than twice as frequently as any other single reason. In Quebec it is reported more than three times as frequently as any other. Other reasons given were:—

The ready source of supply (most important in the Maritime Provinces and decreasing westward until in British Columbia it is mentioned by no dealer).
Ease of handling fish.
Greater demand.
Better facilities for handling fish.
The lesser degree of waste involved.

On the other hand, the most important reason for the preference for handling meat is the greater demand, ease of handling, ready source of supply and better facilities. The greater profit in meat was mentioned by only 11 per cent out of the 74 per cent. Since 8 per cent of the 26 per cent preferring fish report a greater profit in fish as compared with the 11 per cent out of 74 per cent who believe the profit in meat to be greater, some consideration is given to the recent trends in prices of fish and meat.

Retail Meat Prices Decline with Wholesale

Wholesale meat prices reached their peak in June, 1929. The high point in 1930 was in April, and each subsequent month, with the exception of September, 1930, and January, 1931, has shown a decline until in May, 1931, the index number fell to 74·3 from the peak in 1929 of 115·5. Retail prices reached their peak two months later in August, 1929 (111·1), and in June, 1930, the index number was 110·6. A continuous decline then set in, until in May, 1931, the index number stood at 82·8. It is noticeable that, after the two months' lag, the decline during 1930 was as pronounced in retail as in wholesale prices, although in 1931 the severe drop in wholesale prices has not yet been quite reflected in retail prices.

Retail Fish Prices Have Not Followed Wholesale Decline

Wholesale fish prices showed minor fluctuations during the first part of 1929 and reached their peak in October and November of that year. After these months a severe decline set in, interrupted only in October and November, 1930. The drop in wholesale fish prices began five months before that of meat prices and has been slightly greater, the index number for fish standing at 71·1 in May as compared with 74·3 for meat. Retail prices on the other hand have not kept pace. After a peak of 101·9 in January, 1930, a declining tendency

is noticeable, but this did not become settled until September of that year, and only in January, 1931, did the movement become severe. Furthermore, in May last retail prices of cod, halibut and whitefish rose, while those of finnan haddie remained firm, this had the effect of raising the index 5·7 points. Thus, in May, 1931, when the wholesale and retail index numbers of meat prices were 74·3 and 82·8 respectively—a difference of 8·5 points—those of fish were 71·1 and 96·7 respectively—a difference of as much as 25·6 points, or three times greater than in meat. The fish prices used are those of cod steak, fresh and frozen; halibut, fresh and frozen; whitefish, fresh and frozen, and finnan haddie.

The inclusion of canned salmon prices would have made the situation slightly less accentuated. The decline in the retail price of this product has been continuous since October, 1930, when there was an insignificant rise, and practically continuous since January, 1930. With the addition of canned salmon the index number of retail prices of fish was 92·7 in May, 1931, instead of 96·7.

Drastic Decline in Egg Prices

Eggs are another commodity which competes with fish. In contrast with the situation in respect to fish and even meat, the decline in the retail price of eggs has been much sharper than that in wholesale prices. A cheap supply of eggs was recently reported to have played havoc with the fish market in Toronto.

The Retailer's Viewpoint

In defence of the fish retailer, it is stated that under existing circumstances the retailing of fish is not a simple matter. His mark-up must be high, he insists, in order to cover his losses in the spoilage of his stock. The selling of fish is practically confined to Friday, and though turnover is usually fairly complete on this day, he has to carry overhead on every other day of the week. He is always faced with the possibility of fish turning bad and having to be thrown away, this being due perhaps to poor service on the part of the wholesaler, but chiefly to lack of steady demand from the public. Were the consumer persuaded to regard fish as part of the daily diet, he could afford a much less pronounced mark-up.

Views of Inspectors of Fisheries

The inspectors of fisheries were asked to submit their suggestions for achieving a larger consumption of fish. Amongst other suggestions made by them were a forceful advertising campaign in order to increase consumption and a reduction in the spread of fishermen's and consumers' prices; more care in the handling and conservation of fish before it is passed over the counter; encouragement of dealers to improve their methods of display; attractive and more sanitary packing; the greater popularization of fillets.

Suggestions by Wholesalers

By far the most frequent suggestion advanced to increase consumption of fish was the utility of advertising. Three wholesalers advocated the reduction of retail prices. Some emphasized the desirability of regular inspection of retail stores to prevent the selling of poor fish, and some considered a reduction in freight and express rates as the panacea.

Suggestions of Producers and Shippers

These feel that to stress the value of fish as a food would be particularly beneficial. Further experiments with, and improvements of, quick freezing processes were advocated. The institution of more cold storage and freezing plants to take care of oversupply during times of glut was suggested. To intensify the interest of the retailer some suggest the institution of a bonus system whereby the retail dealer would receive certain inducements from the producer, shipper or wholesaler to encourage him to develop the market for fish.

Lack of Variety in Methods of Cooking

Consumers were questioned as to their usual methods of preparing fresh and canned salmon, cod and haddock, halibut, dried cod and finnan haddie. Answers show that nearly two out of three housewives usually prepare salmon in only one way; 31 per cent in two ways; 5 per cent in three ways and only 0·3 per cent in four ways. The lack of variety is greater still in the case of cod and haddock and halibut; here 75 per cent and 77 per cent respectively have only one usual method of preparation. One method of preparing dried cod and finnan haddie is used by 92 per cent of the housewives.

In the case of fresh salmon, cod and haddock, and halibut, lack of variety in cooking is much more evident in Ontario and the Prairie Provinces than in the two coastal areas. British Columbia shows the greatest amount of variety in preparing fresh salmon and halibut; and the Maritime Provinces in cod and haddock. The conclusion appears to be, therefore, that where a fish is extensively used, there is the greatest variety in methods of preparation, and canned salmon is no exception to this. Ontario is the great canned fish area and the varieties in preparing this commodity are in striking contrast with those of fresh salmon. Whereas in Ontario 73 per cent have only one way of preparing fresh salmon, only 44 per cent have one way of preparing canned salmon. The assumption appears, therefore, to be justified that a large and ready supply of a certain type of fish leads to variety in preparation methods; also that variety in preparation methods will at least tend to greater consumption.

Conclusions Relative to Limitation of Consumption

One family out of five reports a definite dislike of fish, the presence of bones being the most important factor, a situation which the greater use of fillets would offset. Though consumers generally do not regard fish as a more expensive article of diet than meat, yet it would appear that the cause of fish is being prejudiced by the fact that retail prices have not declined recently as rapidly as have those of meat and eggs. But it may be pointed out that the extension of the sales of fish to every day in the week, instead of predominantly on Fridays as at present, would enable the retailer to set a lower mark-up on the price he pays. The influence of cooking is of considerable importance; where consumption of fish is high, variety in methods of preparation is also apparent. In general there is too great a tendency to fry fish. To persuade the consumer to improve the standards of preparation would be of inestimable benefit.

CHAPTER IV—THE CATCHING OF FISH AND ITS BEARING ON THE PROBLEM

The catching of fish of itself does not lie within the scope of this enquiry, but some of the problems have a bearing on marketing in so far as they affect the economy of operations, regularity of supply and the quality of the fish, and these are herein dealt with.

The Bait Problem.

Most fishermen in Nova Scotia and Prince Edward Island recommend that bait freezers and cold storage plants be installed at numerous points along the coast. The wisdom of such a program, if subsidized by Government grants, is open to serious question on the following grounds:—

(*a*) Cold storage plants already appear to be located at a reasonable number of strategic points.

(*b*) If such freezers and plants were economically necessary, private enterprise would establish them.

(*c*) The use of quick frozen bait from centrally located brine freezing plants would indicate that the need for ordinary bait freezers will decrease in future.

(*d*) The advantages of brine freezing as a means of widening the demand for fish would appear to be strengthened economically by the addition of bait operations to such plants rather than to state subsidized and uneconomic local ones.

(*e*) The history of the New England fisheries encourages the prediction that operations in Canada will tend towards the greater use of otter trawls, and the consequent decline of line fishing.

Some fishermen's organizations suggest the appointment by the department of a committee composed partly of fishery technicians and partly of traffic experts to survey the bait problem of the entire Atlantic Coast. The functions of the committee would be to determine the bait requirements of each fishing settlement and the average seasonal variation of such requirements. The data thus obtained would be used in drafting a system of seasonal distribution of bait from where there is a surplus to points where there is a shortage, and the most economical means by which it could be carried out.

Preservatives for Nets.

It is suggested that the Biological Board ascertain the results of experiments conducted in other countries and to conduct such further research along this line as may be necessary.

Government Collection Service.

This appears to be highly regarded where it has been established. Some communities suggest a larger number of vessels calling at more ports, and some that points not now enjoying its advantages receive railway express subventions in compensation. It is suggested that the proposed committee for studying bait requirements should determine such adjustment or extension of the Service as may be economically necessary and expedient.

Publication Among Fishermen of Current Prices and Market Conditions of Doubtful Value.

Superficially it would appear that there is considerable merit in the proposal for Government publication among fishermen of current prices and market conditions. It, however, contains a serious element of danger without any actual compensating advantages. Limited to salted, pickled and dried fish, the prices for which do not vary abruptly, it is not objectionable. The danger lies in publishing the prices of fresh fish markets which fluctuate with great rapidity, due to the immediate effect of demand and supply.

Trawlers and Traps from the Marketing Standpoint.

The trawler question has been the storm-centre of controversy on the Atlantic coast and salmon traps on the Pacific coast. It is not the purpose of this report to deal with the technical aspects of the various modes by which fish are caught. The primary interest of increasing and improving the marketing of fish does, however, demand the greatest freedom in applying the most effective and, above all, regular means of securing the catch. Since sound principles of conservation demand a high degree of regulation and restriction as to time and place of fishing operations, it seems obvious that the methods used, provided there is no undue waste in relation to other processes, should be left open to intelligently regulated but not necessarily restricted economic law. In time this will tend to eliminate the less efficient equipment, and this may not always prove to be in favour of the trawler or the trap. It is pointed out that the general working principle of the United States Bureau of Fisheries in dealing with the problem of regulation is " We will tell you *when* and *where* you may fish but not *how*." The " how " will take care of itself in the long run.

Feeling that restriction or elimination of particular types of gear or vessel must rest on definite demands of conservation or economy, no evidence appears to warrant such restriction on these grounds. Since traps are freely used in Alaskan waters and trawlers by the fishermen of New England, and since our fishery products compete both in the United States and elsewhere with fish caught by these means, there would seem to be every reason to suspend existing restrictions on trap fishing on the Pacific coast and the removal of the prohibitive tax on trawler fishing on the Atlantic coast.

The establishment of local freezing and cold storage plants is a plausible alternative to the use of trawlers, if the item of cost involved by the building and maintenance of numerous freezing plants at isolated small villages is disregarded. Unfortunately this fails to pass the marketing test, however, since the demand of the consumer in Canada and the United States is getting more and more away from ordinary frozen fish towards fresh or quick frozen fish, and obviously brine or quick freezing plants could not be economically established at isolated points as they depend for reasonably profitable operation on that very regularity of supply which the shore fishermen cannot provide.

Certain regulation of both trawlers and traps is clearly essential and is almost universally applied by other countries which permit their use.

Suggestions Received for Aiding Fishermen

(A) From Fishermen

Something should be done to raise the level of prices paid to fishermen.

That gear and supplies be provided at lower prices.

That some policy of revolving credits be established by the Dominion Government whereby fishermen will be enabled to secure long term loans at low rates of interest to aid in the purchase of larger boats and more effective equipment.

That more sanitary handling of fish be required.
That changes be made in the lobster fishing season.
That fishermen's organizations be encouraged.
That the steam trawler be abolished.
That technical instruction be given by means of a fishery school and itinerant instructors.
That bounties be given for the destruction of dogfish.
That small smoking houses and similar plants be constructed.
That bounties be paid to fishermen dependent upon the size of catch.
That express rates on small shipments of fish be lowered.
The elimination of all customs duties on equipment and gear.
The prohibition of traps (this is from British Columbia).

(B) Other Suggestions from Fishermen are

Improvement of harbour facilities and wharves.
The establishment of quick freezing facilities at certain specified points.
Extension of railway branch lines to specified fishing points.
Elimination of middlemen and reduction of spread of prices paid by consumers and those paid to fishermen.

(C) From Producers and Shippers

Producers and shippers feel that fishermen could and should exercise more care in the handling of fish, and that ice be carried on all fishing boats to keep fish in good condition.
That the fish be cleaned as soon as caught.
That the use of forks in moving fish be severely condemned.
That fishermen should not hold their catch before landing for an undue length of time.
That fishermen should bleed their fish as soon as taken from the water, especially for the fresh fish market.
That there should be more adequate and rigid inspection.

(D) From Inspectors and Supervisors

The comments and suggestions made by inspectors and supervisors coincide largely with those given by producers and shippers.

General Appraisal of Proposed Aids

Of the suggestions made, many are of a purely local nature; two are contradictory; some are clearly impracticable; several are dealt with in other sections of this report and others are left, without further comment, for the consideration of the Department. The following, however, deserve attention:—

Revolving Credits for Purchase by Groups of Fishermen of Larger Boats

This proposal merits the fullest and most expert consideration by the Department, despite the great obstacles which are present. It applies particularly to those engaged in the "ground" fisheries of the Atlantic Coast. It would appear to be quite possible at certain places on the Atlantic Coast for a group of fishermen to operate a small trawler of 40 or 50 feet in length without excessive financial outlay. Any such scheme of revolving credits would have to depend, among other things, on a thorough preliminary survey of all communities where such a plan might be desired, to determine whether each community would or would not gain by the introduction of such craft; an unconditional outlay on the part of each group of applicants sufficient to guarantee good faith on the one hand and adequate incentive to profitable operation on the other.

Further Educational Assistance to Fishermen

While it is clear that excellent progress has been made in the educational measures among fishermen, it is equally clear that the need is far greater than the present facilities and program of the Department to care for it. The importance of this factor cannot be over-emphasized.

More Restriction, Limitation and Cancellation of Licences

While conservation is not a question pertinent to this survey, there are certain alternative methods of achieving similar results. There appears to be some doubt that the method now employed is the most economical. These instances arise particularly on the Pacific Coast. It would appear that the methods, common in Alaska, of limiting boat and gear licences, and of providing for the full escapement necessary for conservation prior to fishing operations, would be equally practicable and more economical than the present custom, in many parts of British Columbia, of drastic reductions in the number of days per week in which fish may be caught. There is also evidence to indicate that a more rigid use of the cancellation penalty in the lobster canning industry on the Atlantic coast would be in the interests of that industry and of public confidence in its product.

41999—4½

CHAPTER V—THE FISH CANNING INDUSTRY

In this chapter the main processing industry, namely canning, is discussed throughout. An attempt is made to present a comprehensive statement of the fish canning industry as constituted in Canada to-day, and to deal briefly with those aspects of the processing that have a definite bearing on the ultimate marketing of its products. The main information received from the domestic survey on canned fish will, of course, be found in Chapter IX.

Importance of the Industry

In 1929 the combined output of the canning industry was valued at $20,912,939, or 40 per cent of the production of all fisheries in the Dominion.

Fish canning is dependent on export markets for more than 75 per cent of its sales (on a basis of value).

The industry comprises three main groups, salmon, lobster and other fish canneries. In 1929 the output of the salmon canneries in value was 68·2 per cent of the total canned fish production, canned lobster 18·9 per cent and the other canned fish 12·9 per cent.

Canned Salmon

Of the Pacific salmon only 12·5 per cent was marketed fresh in 1929, while in the Maritime Provinces more than 97 per cent was marketed fresh.

By-Products from Salmon Waste

The manufacture of by-products is not, at present generally carried on by salmon canners. It would be of distinct value to the salmon canning industry if the waste from their operations could be utilized profitably. The establishment of a centralized reduction plant to utilize the waste from the many widely separated canneries would appear to be a solution of this difficulty.

The British Columbia salmon pack is largely dependent on the export market. It has been computed that in 1929 more than 90 per cent of the pack went outside of Canada. On the basis of value, however, the proportion is slightly more than 80 per cent.

Identification Marks Necessary for Maintaining Quality

Some system of positive identification for every can packed is considered essential if quality is to be maintained. There appears to be a practice among some packers of packing inferior quality salmon, placing it on the world market and making it increasingly difficult for the product of good quality to find a satisfactory outlet. Purchasers once deceived are prejudiced against all Canadian salmon.

It has also been suggested that all salmon should be canned in the area in which it has been caught in order to improve and maintain the quality of canned salmon.

Salmon canners are desirous of a more adequate system of inspection. They point out the difficulties of establishing definite standards owing to the variable qualities produced in different districts, but they feel this could and should be overcome, especially in view of the growing competition from Siberia and Japan.

Canned Lobster

Lobster canning was carried on in 1929 by 354 canneries in the Maritime Provinces and Quebec. Nova Scotia produced 56·4 per cent of the total output; New Brunswick, 23·9 per cent; Prince Edward Island, 14·3 per cent; and Quebec, 5·4 per cent. The position of lobster canning on the Atlantic is distinctly different from that of salmon canning on the Pacific owing to the importance of the fresh lobster market. In 1929 more than 40 per cent of the total value of all lobster marketed was derived from the sale of the fresh product.

It was found that in Nova Scotia and New Brunswick fresh lobster sales accounted for almost half the value of the output, being slightly larger than those of canned. On the other hand in Prince Edward Island and Quebec, owing to their distance from the Boston market, live lobster sales are only 13·5 per cent and 9·8 per cent respectively of the output.

The average prices obtained for fresh and canned lobster in 1929 show little variation in those of the canned product, the highest being $25.88 per case in Nova Scotia, and the lowest $24.19 in Prince Edward Island. The sales of lobster marketed in the shell, however, show Nova Scotia and New Brunswick prices as $21.65 and $24.60 per hundredweight respectively, while in Prince Edward Island and Quebec they drop to $14.44 and $13.88 respectively.

It appears that the fresh lobster trade in Nova Scotia and New Brunswick is handled to a considerable extent by the fishermen themselves, and not through the lobster canners. The canners state that only between 10 and 20 per cent of their business is in fresh lobster, while of the total lobster trade of these provinces over 40 per cent was in sales of live lobster. In Quebec and Prince Edward Island, however, the industry seems to be in the hands of the canners who report that the live lobster trade forms 10 and 13 per cent respectively of their total business.

Export Markets

Canada produces more than 90 per cent of the world's supply of canned lobster. In 1929, 97 per cent in value of Canada's lobster pack was marketed outside of Canada. Hitherto the export prices have been maintained at a high level. The canned product has been suffering of late, however, in foreign markets in competition with Japanese canned crab. The Japanese product is well packed and is invariably of good quality, whereas Canadian canned lobster varies in quality. Some of the larger and established packing firms have modern well managed plants and are producing a quality pack; but the host of small lobster canneries where the methods are most primitive nullify the efforts of the up-to-date packers. Until a more effective and well-enforced system of inspection is developed and improved methods of processing and positive identification of the product are realized the Canadian canned article will be unable to make further headway in the world markets. Seventy per cent of the live lobster trade is with the United States. On the basis of value it amounts to more than 90 per cent.

Suitability of Lobster Fishing Seasons.

Almost 90 per cent of the canners interviewed reported that the present seasons are suitable for canning operations. It would appear, however, that the present grouping of seasons is not as perfect or as economic as it might be.

While the great majority of lobster canners, however, seem satisfied from a canning point of view only with the present season, there is some evidence to show that the dissenters are those with proportionately greater interest in the live lobster trade.

Lobster fishermen's reports show a much larger proportion of dissenters particularly from places best suited to the live lobster trade.

Evidence from the Boston markets and from all other informed sources points to the continued existence of serious gluts on the live lobster market.

While it is by no means fully established, it would seem that the present seasons favour the canners by the creation of a glut, probably unintentionally, in the live lobster trade at seasons most favourable to canning operations. It would appear to be a sounder principle for the seasons and districts to be based with greater emphasis upon the requirements of the live than the canned trade.

Subsidized Collection Service.

The large majority of those objecting to the service assert that it results in unfair discrimination, since the radius served only covers a limited number of centres. Several are opposed because the market in Boston has frequently been over-supplied, and that the expense of the service is felt to be unwarranted.

Lobster Pounds Advantageous.

The opinions of the canners regarding lobster pounds show that more than two-thirds believe them to be useful, because they facilitate orderly marketing, prevent over-supply, permit a continuous year-round sale and more frequent shipment in carload lots. On the other hand those who oppose pounds state that the quality of impounded lobsters is inferior; pounds are unfit for storage of berried lobsters and they tend to encourage illegal fishing.

Size of Lobster Cans Preferred.

The six-ounce can has a 53 per cent preference, the three-ounce can 34 per cent, the twelve-ounce and nine-ounce, 10 and 3 per cent respectively. In Prince Edward Island only is the three-ounce can preferred to the six-ounce.

Unbranded Canned Lobster.

More than 60 per cent of the canners replying to questions sell their product without a brand name. Approximately 85 per cent of the canners state that it is advantageous to have each can marked in order that it may be traced to the cannery in which it was packed for the purpose of facilitating adjustment of complaints.

Strict Inspection Necessary.

Canners believe that additional supervision is necessary and suggest co-operation between provincial and federal Governments. They desire the continuation and expansion of federal inspection so as to ensure sanitary conditions, the standardization of factory operations and equipment, and uniformly good quality among all canneries.

The suggestions from lobster canners show that standardization of quality is believed to be the strongest incentive to any increase in demand.

Competition in Export Markets.

The extent to which Canadian canned lobster is losing ground to canned crab from Japan and in some instances from Russia, is illustrated by the following export market data. Until recently, there have been few countries which did not import canned lobster from the Dominion. Now, however, from the United Kingdom, Holland, Germany, Australia, New Zealand and the eastern United States have come reports that the demand for canned lobster is either declining or stationary, owing to the inroads made into the trade by crab. It is universally felt that the prices for Canadian lobster will have to be reduced, if the trade is not to decline further, or that its standards of quality will have to be much more constantly maintained.

Other Canned Fish.

In 1929, 31 canneries canned fish other than salmon and lobster. Of these 23 were primarily clam canneries, three sardine canneries and the remainder produced miscellaneous canned fish products. The combined output of these establishments amounted to about a value of $2,191,625, of which 60·2 per cent comprised canned sardines, 18·8 per cent pilchards, 13·9 per cent clams, 4·1 per cent haddock and 1·5 per cent cod. The remaining 1·5 per cent consisted of crab, herring, scallops, halibut and mackerel.

The New Brunswick Sardine Industry.

The sardine industry in Canada is centered entirely in New Brunswick. In 1929 three canneries produced 329,204 cases, valued at $1,319,548. The largest market is said to be within the Dominion, where canned sardines are sold through wholesalers and marketed under the brand names of the different packers. Sardine packers feel that closer supervision of the various fish-canning establishments, together with the rigid enforcement of the provisions of the Meat and Canned Foods Act, would be beneficial.

Clam Canning.

The trade is divided between the domestic and the export markets, the large proportion being shipped to the United States.

It is suggested that a standard weight be adopted for canned clams and be provided for in the Meat and Canned Foods Act.

It would appear that the market for canned clams in Canada is entirely undeveloped. In 1929 the total production of clam canneries was only 54,289 cases, of which 12,994 hundredweights, or approximately 24,000 cases, were exported.

Suggestions.

From the Maritime Provinces and Quebec, various recommendations have been received, but it should be remembered that the lobster industry forms 66·2 per cent of the total fish canned in these provinces, so that the suggestions primarily refer to lobster packing.

It is suggested that what is known as the Knight Grading Scheme for lobster canneries be made compulsory and rigidly enforced; that authority to operate canneries is essential; that the problem of licences appears to affect the canning of lobster, particularly where many packers operate on such an extremely small scale that they neglect to obtain licences.

The use of steam retorts is considered to be most advisable if good lobster is to be successfully packed. It is suggested that courses of instruction should be conducted at the Biological Station for factory managers.

Retailers' Opinions

Retail grocers frequently express the opinion that smaller cases of canned fish products would be more suitable for the trade, and recommend that two dozen one-pound tins should be packed to the case, or four dozen half-pound tins. It is believed that these quantities should be packed in cartons and so reduce freight charges.

It was also suggested that cardboard should be placed in the cases between the cans to prevent any displacement or destruction of labels.

Too Much Emphasis Laid by Packers Upon Ideal Objectives Rather Than Upon the Means of Attaining Them

The most vital and apparent problem of every branch of the canned fish industry is that of supplying the market with identifiable and dependable goods of standard quality, grade for grade. All suggestions received, such as—" better

inspection", "rigid grading", "ruthless condemnation of substandard packs" —are so obvious as to deserve the criticism of "begging the question." It is freely admitted that they are worthwhile objectives, but no practical scheme was put forward for implementing them. The example of Japan in the merger of crab canners, under state encouragement and sponsorship, into a few powerful units, from which substandard "fly-by-night" packers are outlawed, may be ruthless, but it is certainly proving to be effective and worthy of serious consideration. It may have to be adapted, for its Canadian environment, into something which differs in form but adheres in principle, such, for example, as a "closed" association of reputable lobster canners, in which membership can be secured and retained only by obedience to rigid self-made and self-inspected rules—with such tangible advantages as an association mark of readily identifiable character, below the brand of the individual packer, and supported by intensive educational propaganda among the trade and the consuming public in domestic and external markets. While conclusions and recommendations in considerable detail, and applying to the various sections of the canning industry, are made in Chapters XVII and XVIII, these can only be useful as preliminary guides to a program, not of months, but of years, progressively adjusted and strengthened as experience may indicate.

CHAPTER VI—FISH CURING

This chapter deals with curing operations to the extent that these affect their own marketing problems. In addition to a brief sketch of the relative importance of the business, attention is given to ways and means by which the industry can improve its position.

Importance of the Industry

The fish curing industry, including operations such as smoking, curing, pickling and drying, is of considerable importance in relation to the total fisheries of the Dominion. In 1929 there were in operation 242 fish curing establishments. The output of these in that year amounted to $4,799,334 of cured fish. The curing establishments, however, produced less than half of the total cured fish output. The remainder was cured by fishermen or in other branches of the industry.

Cured Fish Chiefly Exported

The Canadian consumption of pickled, dried and salted fish is small. Consequently, the producers of these commodities are almost entirely dependent on export markets.

The Seasonable Problem of Fish Curing Industry

The fish curing business is most active during the periods when the fish are running, this being particularly true of salmon, herring and mackerel. In the dried cod business, which forms so large a part of this branch of the industry, the catches are made during the summer months, although in most areas it is possible to catch cod in the winter time. Open air drying also necessitates that the work be done in summer.

To keep a curing plant running the whole year its operations should be diversified. This may be done by engaging in the shipment of fresh fish, by salting and pickling some species, and by maintaining fish meal plants. One important salt fishing firm on the Atlantic coast is quoted as an example of diversified activities, this firm having extended its operations to producing and marketing fresh, frozen, smoked and canned fish, and producing such by-products as fish meal, fish oil and fertilizer.

Disposal of Waste

More than one-third of the fish curing establishments who answered questionnaires stated that the waste from their operations is merely discarded, while a few report there is no waste from their production. Of the remainder the majority sell their waste to reduction plants, to glue factories, to farmers for use as fertilizer or to fishermen for use as lobster bait. A few state they manufacture their own by-products.

The Salt Problem

It would appear that there is a demand for a better quality of salt. It has been pointed out that the type of salt required for different districts, species and conditions varies greatly, and that no general specification can be prepared or adopted by the whole salt fish trade. It would appear that notwithstanding the difficulties connected therewith, standards or grades should be established.

It has been suggested by experts that in most instances mine salt is preferable to solar or sea salt.

41999—5

In view of the exhaustive research carried on in the United States and elsewhere on the use of salt in the curing of fish, it would appear that the function of scientists attached to the Department and to the Biological Board in the matter of salt, lies in adapting existing findings to the regional requirements of the Canadian curing trade rather than in further original research.

Obstacles to Progress of Fish Curing Industry

It seems clear that the fish curing industry has suffered severe constriction of markets; that such constriction is almost wholly limited to those areas which have not kept up with the latest and best in curing technique, and that those districts which have succeeded in developing and retaining a reputation for preferred quality (such as the Gaspe cure) have never suffered in the past and are not even suffering to any material extent to-day; that the curing industry has a definite, permanent and important place in any program for the integration of the fishing industry. The present markets can be retained and developed at reasonable prices by a determined effort on the part, first of the fishermen themselves, secondly of the Government and the Fisheries Association, to increase materially the proportion of Canadian cures which fall into the preferred class.

The curing business is an essential complement to the proper conduct of the fresh, frozen, and canned divisions of the fishing industry of Canada in providing an outlet to fishermen at remote centres, in adjusting gluts on the fresh fish market and in relieving the strain on quick freezing plants in their facilities for distribution.

While it is not to be expected that the curing branch will expand either in volume or percentage of fishery production—it may even decline a little further —its possibilities of more profitable and efficient operation at such level are distinctly hoped for.

CHAPTER VII—FISH REDUCTION

This chapter outlines the present position occupied by the fish reduction plants, together with a discussion of the production of fish meal, fish oil, etc, in Canada.

Industry Principally on Pacific Coast

While fish meal, oil, etc., are manufactured on both Pacific and Atlantic coasts, the industry is, at present, chiefly a Pacific one. The production of herring and pilchard fish meal and fish oil in British Columbia amounted in 1929 to $1,821,845, or approximately 65 per cent of the total value of the fish meal and fish oil manufactured in that year.

The main market for fish by-products is found to be outside Canada. The majority of the reduction plants answering a questionnaire report that their entire output finds its market in other countries.

Publicity Advocated

It has been stated that the use of fish meal can be increased by means of extensive advertising and that this publicity should be combined with advertising on poultry and stock feeds in farm journals and other media, by demonstrations at Government Experimental Farms with the results printed and circulated among the farmers.

Cod Liver Oil

It has been suggested that the manufacture of cod liver oil might be increased by the installation of modern steam refining plants at various centres. Other oils are sold to refiners and brokers, and the plants report that they are used as cooking oils or lard substitutes, in the manufacture of soaps, paints and varnishes, in the tanning of leather and for other industrial purposes.

Few possibilities for expansion of the fish oil export markets are reported to exist. In the United Kingdom where Newfoundland supplies the bulk of the imported cod liver oil, it is felt that Canada should be able to compete more successfully.

Smaller Reduction Plant Units Suggested

At present, most of the fish reduction equipment is designed for large quantities of raw material, and the price of machinery is high. Small compact units would be distinctly advantageous, as they could be set up in fishing villages where the supply of waste and raw material is seasonal or limited. In certain areas dogfish are a serious problem to the fishermen. These fish could be manufactured into fish meal, fertilizer, oil or other by-products provided that suitable plants were available. In addition, food fish could be manufactured into meal and fertilizer during the periods when prices are too low in the fresh or salt fish markets to warrant their sale for human consumption. This problem of adapting reduction equipment for relatively small output would appear to be within the scope of the Biological Board's activities.

Reports from other countries show that markets exist if producers will conform to the required standards. The market within the Dominion also has great possibilities.

Research Needed

Constructive stimulus to the development of this industry can be given by federal and provincial governments by experimental research in the uses of fish meal, oil and fertilizers. Research in the vitamine content and medicinal values of pilchard and other fish oils would produce beneficial results for the manufacturers of these products, while bulletins and lectures to farmers and stock raisers stressing the merits of Canadian fish meal and fertilizers should assist in increasing their use.

41999—5½

CHAPTER VIII—THE MARKET FOR FRESH FISH

This chapter contains a great deal of information as to the market for each of the many classes of fresh and frozen fish, and an analysis of the facts and opinions gathered from every section of the market. The expansion aimed at in the absorption of fish by the domestic market depends very largely on solving many of the technical problems of refrigeration and preservation. Their solution would do more than anything else to secure greater support from dealers, more frequent purchase by consumers, lower costs of distribution and a better return for each party concerned in the catching and marketing process.

Frequency of Fish Meals Served in Households

In every area four to five meals a month, or one a week, occurs more often than any other frequency. Since one fish meal a week is either ordained by religious precept or sanctioned by custom among a large number of families, more light can be thrown upon the popularity of fresh fish by examining the proportion which serves fish more frequently than once a week. In the Dominion as a whole, 35 per cent of the families serve fresh fish at six or more meals a month. In British Columbia, the proportion is 31 per cent; in the Prairie Provinces 21 per cent; in Ontario 32 per cent; in Quebec 44 per cent and the Maritime Provinces 51 per cent.

Salmon Most Often Used

Nearly two out of three families mentioned salmon when questioned; halibut was named by 48 per cent; haddock by 32 per cent; whitefish by 29 per cent; and cod by 27 per cent. Haddock is purchased by 69 per cent in the Maritime Provinces, but only by 37 per cent in Ontario and one per cent in British Columbia. Halibut is bought by 62 per cent in British Columbia and 69 per cent in the Maritime Provinces but only by 35 per cent in Ontario. Whitefish is bought by 61 per cent in the Prairie Provinces and by 39 per cent in Ontario; in other areas it is not much used.

Effects of Retail Prices

The effect of the relative prices of fish are, in many instances, clearly apparent. The proportion of consumers buying salmon, halibut, whitefish, trout, smelts and flounders is higher in the first class than in the second, and higher in the second than in the third. Cod and herring are purchased by more of the third class than any other, while haddock appeals primarily to families of the second class, probably owing to its convenience in filletted form.

Species Used in Institutions and Restaurants

More halibut is used in restaurants than salmon. Whitefish takes third place and in restaurants is favoured also before salmon. Haddock and cod follow in importance.

Though in institutions salmon is used with decreasing frequency from west to east, in cafes and institutions, as with householders, less of it is eaten in Ontario than in any other area of the Dominion, its place being supplied very largely by whitefish. More halibut is used in British Columbia than in other areas, and this is true also of cod, even the amount eaten in the Maritime Provinces being smaller. Haddock is used in decreasing quantities from east to west.

Condition of Salmon Often Criticized

From all quarters the complaint was heard that frozen fish is soft, tasteless, watery, and breaks up when cooked. Of individual species, the most frequent

criticism was made of the condition of salmon. Complaints were made from all areas, particularly the Prairie Provinces and Quebec, that it was not as fresh as it should be. That frozen fish is improperly handled and often not clean was reported from many places.

Wide Distribution of Salmon

Salmon is carried by 91 per cent of the dealers interviewed. Halibut is handled by 86 per cent, the lowest proportion being in Ontario, 70 per cent. Cod is stocked by a total of 68 per cent, but by only 48 per cent in Ontario. Whitefish is found in 77 per cent of the stores in the Prairie Provinces and in Ontario. Herring is carried by 47 per cent, soles or flounders by 33 per cent, smelts by 30 per cent, trout by 28 per cent, pickerel by 27 per cent, mackerel by 19 per cent (by 45 per cent in Quebec, but only 7 per cent in Ontario). Fresh lobster is handled by 81 per cent of the dealers in the Maritime Provinces. In other areas the proportion is, 43 per cent in Quebec, 41 per cent in Ontario, five per cent in the Prairie Provinces and seven per cent in British Columbia.

Halibut Second to Salmon

Salmon comprises 19 per cent of all the fish sold by retailers, halibut 18 per cent, cod 14 per cent and haddock 12 per cent. Haddock, though forming 18 per cent of the total sales in Ontario, declines to 1·4 per cent in the Prairie Provinces and 0·5 per cent in British Columbia. Whitefish accounts for 15 per cent of the sales in both the Prairie Provinces and Ontario. The proportion of herring sales to the total is highest in British Columbia; of pickerel in the Prairie Provinces and of mackerel in the Maritime Provinces.

Trend of Sales of Different Species

Sixty-three per cent of the dealers report a stationary demand for salmon, yet 23 per cent say it is increasing and only 14 per cent that it is declining. Salmon shows an increase in British Columbia, Quebec and the Maritime Provinces. This is not so evident in Ontario, while in the Prairie Provinces a decline is apparent. Twice as many dealers report increasing as decreasing demand for halibut, trout and pickerel, while 52 per cent state that sales of haddock are greater and only six per cent that haddock sales are decreasing. Halibut is believed to be in greater demand in every area except Ontario.

A slight balance in favour of increasing sales appears in the case of cod, whitefish and flounder. Cod is in greater demand in the four western provinces, stationary in Ontario, but decreasing in Quebec and the Maritime Provinces. The balance of opinion is that sales of herring are declining in every area and of mackerel in the Maritime Provinces.

Seasonal Variations in Production

It is, of course, obvious that the consumption of the different species of fish tends to vary according to the open season for each and this factor is only partially offset by freezing processes. The statistics of the Department show that the following proportions of the more important species of sea fish were caught during each quarter of 1930:—

—	First	Second	Third	Fourth
	%	%	%	%
Salmon	0·1	5·4	75·0	19·5
Halibut	8·7	38·2	36·1	17·0
Cod	5·5	29·0	53·0	12·5
Haddock	20·3	33·4	23·4	22·9
Herring	25·1	25·3	15·2	34·4
Mackerel	.....	69·1	23·2	7·7
Soles	29·8	21·5	24·2	24·5
Smelts	45·2	0·4	2·3	52·1

Salmon and mackerel are thus most fundamentally affected by seasonal factors, while the catch of haddock and soles shows the most even spread throughout the year.

Producers' and Wholesalers' Opinions on Variations in Demand

The replies of producers or shippers as to the variation in demand largely followed the trend shown above, though the distribution of frozen fish tends to even up the proportion sold in the winter months. According to wholesale fish dealers the demand for salmon is greatest in summer and for halibut in spring. Sales of cod and haddock are slightly heavier in spring than in any other season. It appears that no species of fish is reported to be greatest in the fall, and during the winter flounder and smelts seem to be in greatest demand. Sales of fresh water fish are naturally heaviest in spring and summer. Many retailers explain the heavy consumption of fish in spring by the importance of Lent.

Importations of Oysters

While the market for fresh fish in Canada is well supplied by domestic products, oysters are imported in considerable quantities. This is due largely to the depletion of oyster beds in Canada. One explanation of the preference for imported rather than Canadian oysters is that the grading of the domestic product is unsatisfactory, the consequences of which may be brought out by a definite instance. A large company catering to the public made repeated attempts to persuade Canadian producers to grade their oysters according to its requirements. The standard was, however, not maintained, and so much inconvenience resulted that the company now purchases United States oysters through a wholesaler.

Proportion of Fresh Fish Sold

It is computed that in the Maritime Provinces 63 per cent of the fish is sold fresh, 17 per cent is pickled, dried or salted, 13 per cent is canned and seven per cent is smoked. Of the output of the few producers returning answers in the Province of Quebec, 94 per cent is reported to be pickled, dried or salted. In Ontario and the Prairie Provinces practically all the fish is sold fresh or frozen, while in British Columbia the large proportion is, of course, canned.

In the Dominion as a whole, fresh or frozen fish comprises 67 per cent of the wholesaler's business. The proportion by areas is 75 per cent in the Prairie Provinces; 69 per cent in Ontario and Quebec; 58 per cent in British Columbia and 48 per cent in the Maritime Provinces.

Preference for Unfrozen Fish

Of the retail stores interviewed carrying fresh or frozen fish, 92 per cent handle fresh fish; 72 per cent air frozen fish, and 43 per cent quick frozen fish.

The preference on the part of the consuming public for fresh rather than frozen is, however, overwhelming. Fresh fish is stated by 95 per cent of the retailers interviewed to be preferred by their customers. Only in Ontario and the Prairie Provinces were there any dealers who reported frozen fish to be favoured over fresh. Of those favouring unfrozen fish 50 per cent are influenced by its better flavour.

The number of retail dealers who handle quick frozen fish seems to be highest in Ontario. That there is no demand for the quick frozen product was the reason for not handling it given by more than half of those dealers who do not sell it. Nineteen per cent stated that there was no available supply, while 17 per cent explained that dealers did not know of it.

Many consumers interviewed did not realize what quick frozen fillets are and so gave erroneous answers. Consequently the returns from Toronto and Winnipeg are taken for consideration since in these two centres quick frozen

fillets were advertised. The proportion of consumers interviewed who tried quick frozen fish in Toronto was 20 per cent and in Winnipeg 36 per cent. The relatively high price would seem to be somewhat of a barrier to the sale of this product, as it would appear that in Toronto only 16 per cent of the third class of consumers used quick frozen fish, while 31 per cent of the second class and 50 per cent of the first class used them.

Only 11 per cent of consumers believe quick frozen fillets to be superior to ordinary fresh ones; 39 per cent say they are equal in quality; five per cent give no opinion, while 45 per cent believe them to be inferior. Fifty-seven per cent, however, admit that quick frozen fillets are superior to air frozen ones. In Toronto 86 per cent of consumers stated that quick frozen fillets were superior to air frozen ones.

Export Markets for Fresh and Frozen Fish

The only kind of Canadian fish that is exported in a fresh or frozen state to countries other than the United States is salmon. The annual shipments of fresh Gaspe salmon to the United Kingdom have been increasing during the last few years. The bulk of salmon exports, however, are frozen. In the United Kingdom a considerable amount of propaganda by importers has made the consuming public appreciative of the qualities of Canadian salmon, and, since it is frozen, it has the advantage of being always available when required, and can be retained in cold storage in the event of a glut. There would seem to be a possibility of increased sales for frozen salmon in Australia, Hong-Kong, Singapore, Egypt, the Netherlands and Germany. In many of these markets, however, the demand would be limited by its relatively high price.

It is believed that if transportation could be satisfactorily arranged, there is a market for fresh fish other than salmon in the United Kingdom. If the business is to be developed, supplies must be regular, for heavy consignments arriving at indefinite intervals would only disrupt the market on the day they arrived. The development of quick frozen fish would, however, open up distinctly encouraging possibilities.

Shipments of fresh eels are made to the Netherlands and Germany. Competition is severe, however, from Russia and it is not believed that the trade can be increased much. There would seem to be a possibility of developing business in lake trout of not more than one pound in weight with France.

The United States Market for Fresh Fish

The record of express shipments from the Pacific coast shows that 81 per cent of the fish loaded is exported to the United States, three per cent of the shipments from the Atlantic coast (large quantities are sent by water) and probably 75 per cent of the fish originating in inland waters move by express to the United States. The Boston market can absorb little more than it is doing at present. Boston is continually trying to expand its activities westward, and if this business is developed, shipments will be made direct. New York can take more Canadian fish if the quality is maintained, and this applies also to the large inland market where whitefish and lake trout are so popular. Owing to the abundance of the local supply, the western markets cannot take much more than they are now doing.

Improved Technique of Marketing Quick Frozen Fish is Key to Increased Consumption of all Fish

In spite of many unfavourable opinions, quick frozen fish fillets and steaks would seem to be the key to future expansion of domestic fish consumption. They are the only real means whereby fish from the seaboards can reach every centre in the country's interior regularly, in uniformly good condition, and permit of being carried in stock at least during the normal weekly variations

in demand without deterioration. That all depends, of course, upon the existence of adequate low temperature cold storage, of transportation and retail display facilities, and of the observance of proper care at the source. Many of the institutions and hotels which claimed superiority of fresh over quick frozen fish, admitted getting "first choice" of fresh fish shipments, and stated that they found it almost impossible to get fresh fish of as good quality as the quick frozen article, through the ordinary retail channels.

The popularity of unfrozen fish when its quality has been maintained, is evidence of the fact, however, that fresh fish will continue to occupy an important though seasonal and occasional place in the domestic market.

In the next chapter, which deals with the market for canned fish, it is pointed out that the British Columbia salmon packers would do well to develop a desire for their product in frozen, mild cured and fully cured forms, both as a relief to the pressure of price competition from Russia and Japan in the export field, and as a "leader" in the domestic market by widening the demand for Pacific Coast canned salmon.

Means Whereby Integration of Fresh Fish Industry and Trade can be Attained

The whole program of co-ordination or rationalization for the Canadian fishing industry is built around the proper integration of the fresh and frozen fish trade. There is ample precedent for so doing. Until the British Trawlers' Federation, assisted by the Empire Marketing Board, set out to build up a day-to-day consumer demand in Great Britain and to see that other links in the marketing progression fulfilled their proper respective functions, the condition of the fresh fish trade of the Mother Country was in as depressed and almost as disjointed a condition as is to be found in Canada to-day. It was changed by co-ordinated effort. There is this great difference, however, namely, that the United Kingdom had no real problem of transportation over the short distances involved, and technical questions such as quick freezing and cold storage were of trifling significance. These questions are, however, paramount in this country.

CHAPTER IX—THE MARKET FOR CANNED FISH IN CANADA

This chapter deals with the characteristics of the domestic market. The market for canned fish and the marketing methods for supplying it are relatively simple problems compared with those of fresh fish. Yet there are many phases of the canned fish market that deserve careful attention if a greater domestic consumption is to be attained.

Popularity of Canned Fish in Canadian Homes

Slightly less than one-third of all fish meals served in Canadian homes consist of canned fish.

Canned fish finds its largest market among the second income class. It is evident that price is the deterring factor among third class consumers, but it is important to note that the greatest variation in the amount consumed occurs as between areas rather than between classes.

Salmon

Salmon is the most important in the canned fish market.

In Quebec the preference for fresh rather than canned fish is reflected by the fact that 28 per cent do not use canned salmon. Similarly, in British Columbia, the ready supply of fresh salmon causes 11 per cent of consumers not to use the canned product. In Ontario only five per cent do not serve canned salmon. In the Maritime Provinces it is not so popular owing to the availability of fresh fish.

Upward Trend in Demand for Canned Salmon

Sixty-three per cent of the retail grocers reported an increasing volume of sales.

In spite of the evident increase in demand for canned salmon, criticisms were offered by consumers regarding the quality of the product. These criticisms apply chiefly to the lower grades. It was frequently mentioned that too much skin, bones and inferior quality fish are packed.

Sockeye Preferred

Seventy per cent of the retailers interviewed state that sockeye salmon is preferred by their customers. The main reason for this preference is quality. Colour of the fish is also important. It is probable that existing heavy stocks and consequent low prices have had an important affect on consumption of sockeye.

It appears that pink salmon is most popular in the Maritime Provinces.

The Use of Brands

It appears that certain well-known brands are most popular, but a surprising number of consumers believe "sockeye" to be a brand name and stated that they buy salmon by that name. The evidence shows that one-quarter of the consumers of canned salmon do not specify any particular brand when purchasing their requirements.

It is indicated that although British Columbia provides a better market than Quebec the consumption of canned salmon in the former province is not great, and it would appear that the salmon packers have neglected the market immediately surrounding their plants and have attempted to secure business outside of British Columbia overlooking possibilities nearer at hand.

41999—6

Apparently there is an excessive number of brand names in use. No less than 155 different salmon brands were mentioned by consumers and distributors in the course of the investigation.

Modern merchandising practice endorses the use of branded products as they tend to standardize quality, and enable consumers to purchase on a sounder basis. These advantages, however, are lost whenever the number of brand names becomes so great as to result only in confusion. Concentration of salmon packers on fewer brands and the reduction in the number of brokers' brands would seem to offer definite advantages to the salmon canning industry.

Retailers express the opinion that the grade and quality of canned salmon should be clearly marked on all labels. It was even suggested that labels should distinguish between early and late packs.

CHAPTER X—THE MARKET FOR SMOKED, PICKLED, DRIED AND SALTED FISH

The main features of the domestic market, together with a short summary of export demand, form the material of this chapter. For the sake of brevity, smoked, pickled, dried or salted fish are referred to as "cured" fish.

Of the three types of fish products, fresh or frozen, canned and cured, the last occupies the least important place in the Canadian market for fish. The average number of meals served by consumers in their homes shows that 1·2 meals or 14 per cent of the total fish meals served are of cured fish, compared with 31 per cent canned and 55 per cent of fresh.

It appears that in British Columbia and the Maritime Provinces the consumption of cured fish is appreciably higher than in the rest of the Dominion.

As between British Columbia and the Maritime Provinces consumption is higher in the latter area, no doubt as a result of the greater importance of the fish curing industry. Consumption is poorest in the province of Quebec, where 74 per cent of consumers use it infrequently, and where the average of all replies indicates that it is served by consumers at only 0·7 meals a month.

Few criticisms were received regarding the quality of cured fish. It was frequently said, however, that these products are too salty, while some complained that the fish is kept too long before curing. It was also stated by some that smoked fish are not smoked in the true sense of the word, but coloured by vegetable dyes. Such dying, however, does not result in an inferior product. Dyed fillets are generally more juicy and have all the taste but none of the dryness of the genuine smoked fillet.

Cured fish is served by a majority of institutions, cafes and restaurants.

Views of Wholesalers and Retailers

Replies from fish wholesalers indicate that 28 per cent of their volume is accounted for by cured fish. In the Maritime Provinces the corresponding proportion is 44 per cent, and in British Columbia it is 42 per cent. Proportions in other areas are all under 29 per cent.

The fish retailers interviewed in the Maritime Provinces state that only 1 per cent do not handle cured fish.

It appears that smoked fillets are the most popular cured fish. Of those interviewed, 67 per cent carry this variety. In the Maritime Provinces 72 per cent carry fillets and the proportion rises in Quebec to 76 per cent. In Ontario and the Western Provinces it is somewhat less extensive.

Finnan haddie appears to be equally popular. It was found in 66 per cent of the outlets visited. It is slightly less popular in the Prairie Provinces, Quebec and the Maritime Provinces than are smoked fillets, but was found in a greater proportion of British Columbia and Ontario outlets. Kippers are also popular, although they seem to be rather weak in the Prairie Provinces. Dried cod is second only to finnan haddie in British Columbia. Boneless cod is sold by 92 per cent of the maritime retailers interviewed, while dried cod and salt herring are stocked by 78 and 73 per cent in these provinces respectively.

Smoked goldeyes are stocked by numerous dealers in the Prairie Provinces.

Imports of pickled or salted herring amounted to over five and three-quarter million pounds in 1928 and nearly as much in 1929. About one-half of this comes from Newfoundland, probably for purposes of re-export. In 1929, however, over one million pounds came from the United Kingdom and

41999—6½

almost as much from the Netherlands for consumption in Canada, and the price, six cents per pound, seems to show that much of this type of fish is of a high-quality merchandise to suit the taste of particular markets.

In institutional markets preference appears to be for finnan haddie, with kippers and cod next in importance.

Trend of Sales

A greater number of retailers of smoked fillets, finnan haddie and kippers indicate that sales are increasing rather than decreasing. Moreover, the concensus of opinion is to support the belief that these offer the greatest possibilities for expansion in the light of existing trends. The greatest proportion of retailers expressed the opinion that additional advertising is necessary; also that more care in curing the product, and more efficient handling and display would have a stimulating effect upon the volume. It was also suggested that improvement in quality and lower price offer great possibilities, and that cured fish might be successfuly merchandised through the use of packaging methods.

Cured Fish in External Markets

There is considerable demand for Canadian smoked and mild cured salmon in the United Kingdom, although the European sources of this fish offer competition. Mild cured salmon and salted salmon find a market in Germany but meet with competition from Japan.

Dried codfish from Gaspe finds a good market in Southern Italy, where the trade is a stable one. In Greece it is also popular, but the Canadian product is finding it difficult to meet competition from France. Dried codfish is also being shipped to Cuba, but is losing ground to Norway. Large markets for this product also exist in Jamaica and Panama, while in Brazil the demand is at best stationary.

The dried salted herring trade with Hongkong and South China is of great importance to Canada, which largely controls it, but it is felt that greater progress could be made if careful inquiry and consequent reorganization were made of the trade.

Many varieties of Canadian smoked fish are popular in the United States. Chief among these are smoked haddock, smoked cod fillets, haddies, kippers and bloaters. In Jamaica and Haiti considerable demand exists for pickled mackerel, herring and alewives. In addition to dried cod, Panama absorbs much mackerel, pickled salmon and herring.

It has been said that the demand for salted fish is fast declining. That view, however, differs radically from much of the evidence given in this chapter. Canadian institutions are shown to be particularly partial to certain cured products, and the general public also is not averse to certain species. The best curing centres of the Dominion annually attract buyers from foreign countries. It is shown that with few exceptions external markets may be kept and won by high-class cures, produced under efficient low-cost conditions.

CHAPTER XI—COLD STORAGE

Cold storage forms an important link in the chain of fish distribution from producer to consumer. Its importance is fully appreciated by the majority of interests concerned, but the proper method of dealing with the situation is not apparent to many. In Canada at the present time the demands of certain groups of individuals in the fishing industry are at direct variance with the natural operation of economic and business principles, for the erection and maintenance of numerous small cold storage plants scattered along the coast would be both wasteful and of doubtful value to the industry as a whole, or even to the small community so supplied, while the adequacy of present facilities is open to some question, this fact in itself does not justify the adoption of the remedies suggested by fishermen, vessel owners and inspectors.

Function of Cold Storage.

From the time a fish is taken out of the water, deterioration begins. If consumers living at a distance from the source of production are to receive fish in a condition approximating fresh caught, then means must be provided to arrest deterioration. This delay is being accomplished best by freezing or protecting the surface with a glaze of ice. It is a fact that fish, properly taken care of at the source, well-iced and packed, rapidly transported and quickly distributed to the consumer, can be carried for a considerable distance and still prove excellent in quality. Unfortunately, however, it is found that a considerable amount of fish in Canadian markets has been allowed to deteriorate. People do eat such fish, but they do not thereby acquire any zest for a regular fish diet. If inland consumers could be assured of an unvarying quality of fish, with freshness and flavour unimpaired, then one of the greatest obstacles to expanding the market for fish would be overcome.

It is thus apparent how important proper cold storage facilities are to the successful marketing of perishable foods such as fish. Furthermore, the function performed by cold storage is an economic one, for it provides a means for extending the season and continuing the market, since surplus production may be preserved until such time as demand strengthens—sometimes several months later.

Improved Methods and Equipment Necessary.

If fish are quickly frozen and properly stored, the features of mildness and firmness that characterize fish just out of the water become slightly more pronounced. The unfrozen fish in the course of time becomes rotten, while frozen fish in the course of months is likely to become fibrous, dry and tasteless.

Generally speaking, land storage plants as regards equipment, storage chambers, constant temperature control, etc., have not been developed as rapidly as freezing methods during the last few years.

In the opinion of some experts, conditions of cold storage in present plants are not sufficiently good to ensure keeping quick frozen products in first class condition if held for many months. Such products do not warrant holding for more than a month, if the highest quality is to be assured.

Time in Storage Investigated

A statistical investigation was carried out with the object of determining the average age of cold storage holdings at any time over a period of years, and it shows that in mid-winter the average age drops to about four months, while

in mid-summer the figure rises to six months and longer. It would appear that six months is too long a time for fish to be kept in storage, while six months may not be too long for quick frozen fish, this is not so for the sharp frozen product. The relative amounts of quick and sharp frozen fish included in the figures for freezings are not known, but it is certain that the quick frozen fish are, as yet, only a small proportion of the total.

Fishermen, Vessel Owners and Inspectors Favour Localization of Storage Facilities.

Reports from fishermen, vessel owners and inspectors in the Maritime Provinces suggest a need for more cold storage facilities installed at various localities along the coast. According to the large majority of fishermen, the need for adequate storage facilities is bound up with the bait problem. The surmounting of these difficulties, they feel, would go far towards improving the position of the Canadian Maritime fishermen. In Quebec (exclusive of Gaspe), Ontario, the Prairie Provinces and British Columbia opinion was divided as to whether present facilities were adequate or more were required. The level of storage rates in British Columbia was also criticized, particularly in the Prince Rupert plant, but no criticism was received as to the capacity or efficiency of the latter which seems rather to be regarded as one of the model plants of the continent.

In securing information relative to necessary cold storage installations, the greatest diversity of opinion was evident. Cold storages were sought by the fishermen operating in numerous little villages and coves around the eastern coast, particularly in Nova Scotia, so that they could obtain bait readily and also be able to store their fish conveniently at times when the market is glutted with fresh fish. Some of the fishing villages suggested as locations for cold storage were found to have only a few men engaged in fishing and these only on a part time basis.

The incongruity of such suggestions is evident, for the erection and maintenance of small cold storage plants scattered widely up and down the coast is obviously uneconomic and wasteful. Already in places where the volume of business is sufficient and where transport to market is available, private enterprise has taken care of cold storage. Despite the fact that criticism has been levelled at existing facilities, probably with some justification, this does not prove the need of erecting cold storage plants in numerous places supporting very small fisheries. Such a procedure could only result in severe operating losses in most instances, for the economies of large scale operation could not be realized, and furthermore, these plants would be idle for a considerable portion of the year, thus greatly increasing overhead costs per unit.

Prime requisites for the efficient and economic operation of cold storage plants are volume and continuity of business handled.

It would appear that fish should be brought to central points as soon as possible after they are caught. The word " central," as used in this connection does not imply the scrapping of existing plants which are performing a useful service. It does imply, however, that no further decentralization should take place through the construction and maintenance of uneconomic state subsidized cold storage or bait freezing units at small centres which have failed to attract or retain the interest of private enterprise in such units.

CHAPTER XII—QUICK FREEZING AND PACKAGING

The best sharp or slow frozen sea foods are not as satisfactory as fresh products of their respective classes. Proof of this lies in the consistent presence of a price difference between fresh and sharp frozen products of the same kind in the same market.

Much experimental work has recently been done in attempting to preserve the qualities of freshness, firmness and flavour in frozen fish. The industrial application of what is known as quick freezing was first made within the last five years, and though still in its experimental stage it bids fair to revolutionize development in production, sale and consumption of sea and other perishable foods.

The work of the Biological Board of Canada has been significant in this regard, and the information made available by it, as well as that contained in publications from the United States and other foreign sources of a technical and trade nature, have been drawn upon in compiling this chapter.

The results of this investigation indicate that, while quick freezing has merits and potentialities, there are many problems yet to be overcome.

The patent and process situation is in a chaotic state meantime, while many enthusiastic but uninformed persons add to the confusion by extravagant statements and unwise applications of one or other of the many processes. The adoption of quick freezing brings new problems in transportation and retailing which must be overcome. The difficulties of transportation, however, seem capable of easier and earlier solution than those of a retailing character.

As a result of what has already been done and of the bright outlook for quick freezing, a great deal of attention has been paid to this aspect of refrigeration in recent years. Quick freezing plants are continually being opened on this continent, and many other countries, particularly in Europe, are also turning their attention to this phase of refrigeration.

This chapter contains a brief discussion of the more important quick freezing processes which number sixteen. The information has been secured in part from published sources and in part through consultations.

The discussion shows that it is impossible as yet to pick out any one process as the best under all conditions. Any such sweeping conclusions would rest on a purely theoretical basis, for future experiment and experience alone will determine the most advantageous process to use in individual applications.

Brine Freezing Frequently Over Emphasized

It is sometimes said that too much attention has been paid to brine freezing processes and too little to improvements in sharp freezing methods. It has been held that quick freezing could be accomplished by an application of present sharp freezing methods, provided some experimental work were attempted along these lines. As the possibilities for quick frozen food were unfolded, there seems to have been a rush to develop processes using brine.

Systems using brine circulation have an inherent advantage, however, in that the brine may serve as storage for refrigeration, which means that such a plant can respond to abruptly variable demands.

Market Opinion Favours Quick Frozen Fish

Many extravagant statements and predictions have been made with regard to the marketing of quick frozen fish. Development in this branch of refrigeration has been so rapid that many believe quick freezing will revolutionize

the food industries in the immediate future. These beliefs apply with particular force to the marketing of fish for two reasons; first, because fish lend themselves readily to the technique of quick freezing; and secondly, because the fishing industry is in such a condition that any promise of improvement has been seized upon eagerly by all concerned.

The majority of producers who have had experience with the quick freezing of fish were enthusiastic in their approval; also retailers who have handled the quick frozen product. Quick freezing is regarded by some as the key to additional inland markets. It is also considered to be the main solution to the present lack of equilibrium between supply and demand.

Information gathered from fishermen and vessel owners who have had some knowledge of quick freezing coincided roughly with those of wholesalers and retailers. The chief difficulty as seen by them is in the necessity of having the fish frozen very soon after they are caught, as quick frozen fish lose much of their attractiveness if they are allowed to remain fresh for any appreciable length of time before freezing. Consequently some means will have to be found for shortening the period between the time the fish are taken from the water and time they are frozen.

Outlook for Quick Freezing

The consensus of opinion, both in this country and the United States, seems to be that quick freezing of perishable foods is not only economically justified, but is bound to become of increasing importance as time goes on. Furthermore, quick freezing provides a means for bringing their products into line with the current marketing trend of increased use and demand for packaged and branded products. Quick freezing makes it possible to ship fish to inland markets which could not previously be developed with the unpalatable product, processed by the older sharp freezing methods.

It cannot be stressed too strongly, however, that quick freezing will not suddenly reach a place of prominence in the distribution of fish, but will only attain this position slowly.

Stabilization of Demand and Supply by Quick Freezing

Probably the greatest function of quick freezing is the stabilization of production. When there is an over-abundance of fresh fish landed and the price falls, then will be the occasion for quick freezing plants to process these low cost fish and store them for future sale.

That applies to seasonal variations. It is of equal importance in the factor of weekly variation. Evidence from consumers show that while the Friday eating habit has its origin in religious observances, it has now extended far beyond that. The average housewife has come to believe that the trade stocks up with fresh fish only once a week, and this has actually contributed to produce such a condition. This vicious circle would appear open to reversal by means of extending the popularity and availability of the quick frozen product.

Adequate Control a Limiting Factor

One serious limitation is the need for careful control of the product throughout its distribution. If there is any inefficiency in the system, an inferior product will result, and all the advantages of quick freezing may be lost.

The need for control begins immediately when the fish is caught. Obviously the quick frozen product, when finally consumed, cannot be better in quality than it was at the time when it was frozen.

The freezing plant is the next link in the chain. Many precautions must be taken here to ensure that the fish are properly handled and frozen.

From the freezer the fish may go to cold storage rooms. These must be kept at sufficiently low temperature to ensure that no thawing takes place. During transportation of the product and while it is in the hands of the retailer, in fact until it is about to be cooked by the consumer, great care must be taken to see that the temperature does not rise and thawing ensue.

Probably the weakest link in the chain from this viewpoint is the retailer, who ordinarily cannot afford to have adequate refrigerating equipment in his shop, and who in many cases has not yet become fully impressed with the importance of maintaining such fish in its original frozen state.

Packaging and Branding Possible Through Quick Freezing

Generally speaking, the marketing of fish in packaged form is beneficial to both producer and consumer. The producer is given the opportunity of supplying a more attractive product which can be branded and carried right to the consumer with such guarantee as the brand may carry. Advertising work can readily be used on the package, in addition to helpful educational matter to the consumer. The consumer benefits by the implied guarantee of the producer's brand of a standard quality packed in an attractive manner.

Package Requirements

To meet the requirements of prolonged storage, packages must be moisture and vapour proof, airtight and strong enough to resist rough handling.

There is no package available at the present time which meets all these requirements. Paper-board cartons, however, being rectangular, are capable of being packed into shipping containers with practically no loss of space, and they are strong, attractive and cheap. For products like fish fillets, preliminary wrapping in moisture-proof material such as cellophane or waxed vegetable parchment paper, etc., is necessary.

In the experiment conducted by the Biological Board, quick frozen fillets were first wrapped individually in waxed paper, then placed in pound cartons. These cartons were then packed in twenty-four pound corrugated paper boxes, which proved to be very convenient in shipment from wholesaler to retailer. For railway shipment these boxes were placed in ninety-six-pound cases in order to provide better protection.

Retail Problems

The retailing of packaged perishable products must be as carefully protected as other stages in distributing the products.

The prime requisite is not mere refrigeration but adequate storage space for the whole stock carried at a temperature well below the thawing point.

It must be remembered that the consumer seldom if ever has any means of keeping this fish in a frozen state. It should, therefore, be purchased for quick consumption, to be eaten say within twenty-four hours after being bought. It would seem to be necessary that full instructions should accompany every package of frozen fish, so that the consumer and producer are fully protected and the housewife is informed as to the best means of preparing the fish for the table, and how to handle it from the time it is received.

It appears insufficient to have refrigerated storage space in basements or cold storage rooms in the marketing of quick frozen products. Since the product is a new and different one, it should be displayed in a show case. Therefore, retail show cases of proper design to handle quick frozen products appear to be necessary to successful merchandising. Excellent low temperature refrigeration must be provided for these cases; they must be of attractive appearance and placed prominently on the floor of the store. They must also be capable of withstanding the severe operating conditions to which they are subjected, and be reasonable in initial cost.

Lack of Refrigeration Equipment

Retail refrigerating equipment methods in Canada are not notably progressive. The majority of retail outlets still use ice. It should be obvious that the ordinary automatic electric refrigerator for household use is quite unsuitable for quick frozen fish, because it does not and is not intended to maintain a sufficiently low temperature. The cost of installing adequate refrigeration for quick frozen products by retailers would seem to make it impossible for the small fish dealer to purchase such equipment under existing price conditions.

Manufacturers of refrigerating equipment have, however, addressed themselves to the task of providing suitable equipment at reasonable prices. Thus, although various experiments with low temperature refrigerated show cases have been tried, it is not yet safe to point to any specific one as being satisfactory under all conditions.

Cost of Equipment Relatively Prohibitive

The cost of display and storage cases along with the requisite refrigerating equipment is beyond the means of many of the retailers who handle fish. An inexpensive arrangement has been worked out using dry ice as the refrigerant.

The fish is delivered to the retailer in cartons of two dozen one pound packages. To display the fish, the bottom layer of the package is removed from each display carton and the space filled with dry ice. The carton is then placed in the ordinary refrigerated show case in the usual manner. A small amount of dry ice—eight or ten ounces—together with the refrigeration in the case, is sufficient to hold the contents of the carton solidly frozen during the time the fish are on display. Customers are served from a container at the rear of and attached to the case. This container is well insulated and contains a false floor. Dry ice is placed beneath this floor and the frozen fish above it. A few pounds of dry ice are sufficient to keep the stock frozen. Access to the container is through a trap door at the top. When a consumer purchases some of the fish a small piece of dry ice can be placed in the parcel, thus assuring adequate refrigeration until the products reach their destination.

Potentialities and Limitations of Dry Ice

Dry ice is the trade name for solid carbon dioxide. This is a white substance of the consistency of ordinary ice, having a temperature of about 110 degrees below zero Fahrenheit. It evaporates at a rate depending upon its surroundings into an inoffensive and invisible gas that is neither poisonous nor combustible.

If used for refrigeration in a manner similar to water ice, it is about twice as efficient per given quantity.

The effect of carbon dioxide gas upon meats and fish is being closely watched, and it now appears that it has a germicidal action resulting in retardation of bacterial growth. Much work still remains to be done, however, in determining the preservative qualities of this gas.

At present, cost and availability are the chief difficulties connected with the use of dry ice. So far it is not readily available east of Montreal. At the price of $100 per ton, which is about as cheap as it now can be purchased, it is still too expensive for wide spread use. It has been stated on good authority, however that a new process is being developed for producing dry ice for about one-quarter the present cost. If this turns out to be the case, then two of the greatest difficulties in its way will have been removed.

Financing of Retailers

For the purpose of eliminating the final obstacle to getting the broadest possible distribution of quick frozen products, General Foods Corporation of the United States have recently completed arrangements with the Commercial

Credit Company of Baltimore, for the financing of retailers' purchases of low temperature display and storage cabinets. Similar arrangements exist among Canadian food producers in the ice cream trade.

This arrangement has several advantages from the standpoint of the producer of quick frozen products. The interposition of the credit company between the retailer and the producer shifts part of the risk of the instalment sale, does not deplete the working capital of the producer and avoids adding the functions of a credit company to that organization.

Sound as this solution may be in special cases like the above, it cannot be universally applied. Many retailers handling fish could not afford to buy the necessary equipment even on the instalment plan, so that risks of carrying out such a scheme on a broad scale are heavy under existing conditions. Moreover, only the largest producers of quick frozen fish, supplying a proportionately large number of retailers, would be able to effect any sort of satisfactory arrangement with credit or finance companies.

Conclusions as to Retail Distribution of Quick Frozen Fish

Those interested in the distribution of quick frozen foods in the United States are perfectly satisfied that success can be achieved only when retail food merchants are equipped for proper storage and display. Consequently any attempt to establish retail outlets for quick frozen products in stores that are not equipped with low temperature refrigerators will simply result in dissatisfaction on the part of the consumer, and retard rather than promote progress.

Obviously, the small producer of one or two quick frozen products is in an altogether different position than that of the large corporation producing a great number, so that methods which apply to the latter cannot be adopted by the former. Probably producers of one quick frozen product will encounter serious difficulty in obtaining proper retail distribution until a sufficient number of retailers have installed low temperature cabinets on their own account to enable them to be independent of producers of quick frozen products.

Criticisms have been received from retailers that a larger margin of profit should be provided for them, owing to the greater expense involved in handling quick frozen foods and the possibility of losses from spoilage. It does not appear however, that these complaints need be taken seriously because the retailer achieves, by means of quick freezing, a more even weekly and seasonal distribution of fish, a wider public acceptance of it and practically no losses whatever if he procures and maintains the proper equipment.

CHAPTER XIII—TRANSPORTATION

This chapter deals with the carrying of fish from fishing grounds to producer's plant, from producer's plant to cold storage, thence to the wholesale and retail trade, particularly as they concern fresh and frozen fish. An analysis is also made of certain rail shipments of fish, designed to bring out the respective functions of freight and express services in the carriage of fish.

Need for Improved Refrigeration in Vessels

The first stage in the transport of fish from sea to consumer is concerned with the fisherman and his equipment. Even in the shore boats, which are responsible for a large proportion of the fish marketed, means should be provided to arrest deterioration of the product so that it can be delivered at the packer's plant in first class condition. It is necessary to make short trips and install properly insulated ice boxes in the boats if the catch is to be landed in the best possible condition.

The necessity for taking proper care of fish in shore boats all over Canada cannot be too strongly stressed, and some type of insulated and well-drained ice box is suggested to aid in keeping the fish good.

In vessels attention should be paid to the proper insulation of the holds and the installation of some inexpensive form of refrigeration that will keep down the temperature without freezing the fish.

Transport by Rail

Fish in the fresh state, when shipped for any distance are packed in ice, the whole being enclosed in a stout wooden box. As this type of preservation is good for a short time only, the fish must be sent to their destination with all possible speed. Consequently shipments of fresh fish are usually made by express rather than by freight. Carload shipments are made in ice bunker or brine tank cars. The records of the Canadian National Railways indicate that of the fresh fish carried by this road 84 per cent was shipped by express and 16 per cent by freight.

The importance of express carriage is thus clearly apparent. With frozen fish, however, colder temperatures must be maintained, which necessitates the use of refrigerator cars, and ordinarily such shipments move by freight.

Suggestions Regarding Transportation Facilities.

It has been suggested that there should be a rapid collection service to bring the fresh fish from the small fishing boats to the point of shipment to consumer as soon as possible, also that express or fast fish trains to distant markets should be available.

Suggestions from producers and shippers were found not to be very constructive. In British Columbia the majority indicated that present facilities are reasonably satisfactory. Much the same condition is found in the Prairie Provinces and Ontario. The use of cars refrigerated by mechanical means, and better refrigeration for small shipments were considered necessary by producers and shippers in the Maritime Provinces.

Railway Rates Criticized

The reduction of railway rates was the most frequent suggestion made by all branches of the fishing industry. These apply particularly to express rates, and were advocated more strongly by the Maritime Provinces' interests than by

those from other parts of the Dominion. On all sides the existing level and structure of rates is blamed for arbitrarily restricting the market for fish in interior sections of the country.

Many anomalies were pointed out in existing rates. For example, a box of smoked fillets from Halifax to Sydney is charged $1.70, while a box of fresh fillets of the same size and weight costs only $1.10. One hundred pounds of fresh fish sent from North Sydney to Sydney, a distance of twelve miles, costs $1, while the same box shipped from North Sydney to Halifax, a distance of 260 miles, costs only ninety cents. A complete revision of the rates has been suggested in order to smooth out such irregularities.

While it is undoubtedly true that a reduction in freight and express rates would tend to expand the market for fish, it is not at all certain that such a procedure is economically justifiable.

Many of the anomalies in the rate structure can no doubt be explained by the fact that it is necessary for the railway to carry fish in many instances at a rate barely sufficient to cover expenses in order to move the traffic at all; while in cases where it is possible to charge higher rates without drying up the traffic, this is done in order that the road as a whole may continue in operation and perhaps even earn a profit. Furthermore, it should be appreciated that moving such perishable traffic as fish entails far more than average expense for the railway.

Since so many opinions have been expressed in favour of rate revisions, especially in the Maritime Provinces, it might be well to undertake some such investigation.

Present Railway Equipment in Canada

Because of the demand for better and safer means of transportation, the railways, steamships, transport companies, etc., have been forced to give more thought and study to the design of cars and other equipment in the past five years than ever before. As a result, many improvements have been made in design, construction, insulation, ventilation and refrigeration.

Up to the present the refrigeration of railway cars in Canada has been limited to the use of ice, ice and salt, brine and solid carbon dioxide, the latter being still in the experimental stage of development. The Canadian National Railways report that they have experienced no trouble in preventing the temperature from exceeding twenty degrees with the use of salt and ice. This temperature is considered by some to be quite sufficient.

The newer cars only are used for carrying quick frozen products, and the older types are employed for carrying the sharp frozen and iced fish. The Canadian National and Canadian Pacific Railways each own more than four thousand refrigerator cars.

A few brine tank cars have been built for use in Canada, but it is not expected that more of these will be constructed, the ordinary ice and salt refrigerator cars being considered sufficient.

Another refrigerant which is receiving an increasing amount of attention in the transportation field is dry ice.

The latest development is typified by a steel refrigerator car constructed about a year ago by the American Car and Foundry Company and used for the purpose of accumulating practical experience.

Test loads are being hauled for a flat charge of $12 per day under refrigeration, with a minimum charge of $48, including the necessary dry ice for precooling the car and providing sufficient margin of safety to allow for reasonable delay in transit.

Several installations of a method of car refrigeration using no source of mechanical power, the operation being effected by heat from a stored gas supply and based on several physical properties of a substance known as silica gel, have been made in the United States.

Despite statements of the advantages of the silica gel cars, there appears to have been some rumour to the effect that those who started using them for quick frozen products, have now abandoned this method and are looking for something better.

Owing to the fact that mechanical or electrical refrigeration is cumbersome and heavy, and does not withstand the rough usage in railroad work, it probably will not be applied extensively. Dry ice and silica gel appear to have some advantages, but if the cost of dry ice can be reduced in the future, and there are indications that this is possible, the chances are that it will readily displace the silica gel method.

No doubt there are many improvements which can still be made in ordinary ice and salt refrigeration. For example, improvements based on a more scientific view of air circulation are of particular interest. Superior insulation, balanced on top, walls and floors in relation to which each is exposed, appears to be a real source of economy in the newer refrigerator cars. More efficient doors, floors, racks and the like, and more strict maintenance to prevent refrigeration wastes that formerly were common, appear to be justifying themselves on economic grounds. It appears, therefore, that the expenditure of more effort and research to improve existing methods and less on the more spectacular newer methods would prove beneficial.

Motor Truck Refrigeration

In the transportation of frozen fish for short distances, no refrigeration is necessary provided proper insulation is used in the packages. For longer distances, however, some refrigeration is required. Consequently, with the increased use of the motor truck, refrigerated truck bodies have had to be designed. Salt and ice have been used for refrigerating purposes, also what is known as cartridge refrigeration has been tried. Dry ice is also employed in motor truck refrigeration.

Which type of truck is best depends upon the requirements of the individual conditions. Although all are still more or less experimental, any one, if properly used, will maintain low temperatures. It is primarily a matter of cost under different conditions of operation.

Air Transport

Experiments have been tried in transporting fish by aeroplane. Obviously the high cost of this type of transportation makes it feasible to use only in special cases. When the time saved by aeroplane transportation is a more important consideration than its expense, it may be found possible to sell the fish for a price that will cover the additional cost.

Analysis of Shipments by Rail

The rest of this chapter is devoted to an analysis of fish by rail, which serves to illustrate certain principles discussed in previous paragraphs, and also supplements information given in other chapters of this report, particularly that concerned with the relative popularity of types of fish in various districts, and with the relative consumption of fish in each economic area. Some of the data on freight used in these computations is shown in the annual edition of the Monthly Traffic Reports, published by the Dominion Bureau of Statistics; while the express statistics were furnished by the express companies of the two large railways. Much of the information contained herein is original, in that it was compiled by this investigating firm expressly for the purposes of this report,

through the courtesy of the freight department of the Canadian National Railways, who made available their records of fish loaded, showing the type of fish, the origin and destination, and the weight of each shipment. It may be pointed out that only in this way can statistics of canned fish shipments be discovered. For obvious reasons the results of these computations are shown in percentage form only. These data fall short in two respects—full statistics of the Canadian Pacific Railway movements were not available (since, in 1930, of the 82,759 tons of fish other than canned fish loaded in freight cars at stations in Canada, the Canadian National Railways, situated in the prolific fish-producing areas of the Dominion, were responsible for 62,881 tons, the analysis of the movements by this railway is sufficiently indicative), and no account could be taken of fish moving by water or road. In spite of these considerations, however, it is believed that the results are highly illuminating. (In a few instances, the complete breakdown of express statistics had to be estimated.)

Of the fish (excluding canned fish products) loaded in Canada by the freight divisions of all railways and the express divisions of the Canadian National Railways and the Canadian Pacific Railway during 1930, the various economic areas were responsible for the following proportions:—

British Columbia	17 per cent
Prairie Provinces	23 "
Ontario	10 "
Quebec	5 "
Maritime Provinces	45 "
	100 "

In this, the effect of the omission of water-borne shipments is clearly apparent. In British Columbia a large portion of both the green salmon and the canned product moves by boat. The relatively low figure of 17 per cent in this province comprises almost entirely the halibut landings in Prince Rupert. The importance to the railways of the fishing industry in the Maritime Provinces is, therefore, all the more clearly accentuated.

Export Shipments Important in Every Area

The tables on the following page show both the destinations of the fish (including canned) loaded in each area, and the origin of the fish unloaded in each area by both the express and freight divisions of the Canadian National Railways. It should be noted that no transhipments of fish in Montreal have been included in the figures given below. The importance of this factor is clearly brought out by the records of the Harbour of Montreal. During the 1930 season 2,334 tons of cured fish and 3,041 tons of canned fish passed through the port, of which 1,587 and 1,340 tons respectively were distributed by rail after import.

There are several conclusions from these tables which deserve some mention:—

(*a*) It would appear that a smaller proportion of fish is exported from the Maritime Provinces than any other area. Actually, however, the bulk of the 33 per cent shown as unloaded within the area is consigned to Halifax for export shipment. This also applies partially to the 28 per cent which is loaded and unloaded in the province of Quebec, Montreal being the point of transfer. The importance of the export market to every area is, therefore, readily apparent.

(*b*) The diminishing distribution of Atlantic fish as one proceeds west is clearly evident.

DESTINATION OF FISH LOADED IN VARIOUS AREAS, 1930, CANADIAN NATIONAL RAILWAY FREIGHT AND EXPRESS

To	From				
	Maritime Provinces	Quebec	Ontario	Prairie Provinces	British Columbia
	%	%	%	%	%
Maritime Provinces	33	3	.....	.....	1
Quebec	18	28	9	x	6
Ontario	12	9	42	7	23
Prairie Provinces	3	x	.....	35	12
British Columbia	1	.....	.....	x	1
United States of America and other Export Markets	33	60	49	58	57
	100	100	100	100	100

ORIGIN OF FISH UNLOADED IN VARIOUS AREAS, 1930, CANADIAN NATIONAL RAILWAY FREIGHT AND EXPRESS

From	Unloaded in				
	Maritime Provinces	Quebec	Ontario	Prairie Provinces	British Columbia
	%	%	%	%	%
Maritime Provinces	98	81	48	22	71
Quebec	x	7	1	x	.....
Ontario	.....	4	18	.....	.....
Prairie Provinces	.....	x	6	53	2
British Columbia	2	8	27	25	27
	100	100	100	100	100

x Less than 0·5 per cent.

The analysis of the types of fish originating in each area is of some significance. These are shown in the following table, composed of shipments by Canadian National express and freight taken together, where, as mentioned before, all express shipments have been assumed to be fresh fish.

PROPORTION OF VARIOUS TYPES OF FISH LOADED BY THE CANADIAN NATIONAL RAILWAY IN EACH AREA, 1930

From	Maritime Provinces	Quebec	Ontario	Prairie Provinces	British Columbia	Canada
	%	%	%	%	%	%
Fresh	23	32	90	47	49	35
Frozen	23	1	10	53	27	25
Cured	42	67	*	*	1	28
Canned	12	*	.....	.....	23	12
	100	100	100	100	100	100

* Less than 0·5 per cent.

PROPORTION OF VARIOUS TYPES OF FISH SHIPPED BY THE CANADIAN NATIONAL RAILWAY INTO OR WITHIN EACH AREA, 1930

Shipped to	Maritime Provinces	Quebec	Ontario	Prairie Provinces	British Columbia	United States of America
	%	%	%	%	%	%
Fresh	19	49	49	24	21	40
Frozen	9	29	22	43	11	29
Cured	59	9	8	8	61	29
Canned	13	13	21	25	7	2
	100	100	100	100	100	100

Half of Fresh Fish Shipped to Quebec by Freight

It is possible from these statistics to analyze how far the desirability of shipping fresh fish by express rather than by freight, as discussed in early sections of this chapter, is carried out in practice. The analysis of this question should be effected from the point of view of the destination rather than the origin, since the mode of shipments is determined by the consignee. If it is assumed that all express shipments are of fresh fish, the proportion of shipments made by freight and express (Canadian National Railways only) into, or within each area in 1930 was:—

—	Freight	Express
	%	%
Maritime Provinces	26	74
Quebec	51	49
Ontario	4	96
Prairie Provinces	34	66
British Columbia	(x)	100
Canada	27	73 (y)
Shipments to United States	3	97

(x) Less than 0·5 per cent.
(y) The inclusion of shipments to the United States brings the proportion by express to 84 per cent, the figure given in an earlier section of this chapter.

Distribution by Express

Of the fish moved by express by both the Canadian National Railways and Canadian Pacific Railway from the Maritime Provinces, the following proportions were destined to various areas:—

Maritime Provinces	22 per cent
Quebec	20 "
Ontario	54 "
Prairie Provinces	(x)
British Columbia	–
United States	4 "

(x) Less than 0·5 per cent.

This again shows how much more fish is shipped by express to Ontario than to Quebec.

Express shipments from British Columbia are in striking contrast with this, as is shown by the following table:—

Maritime Provinces	–
Quebec	3 per cent
Ontario	3 "
Prairie Provinces	7 "
British Columbia	5 "
United States	82 "

The most important movement in this district is the halibut shipments from Prince Rupert. In 1930 only 8·5 per cent of this volume was destined to Canadian points, the rest going entirely to the United States.

Transportation Factors Should Play Important Part in Fisheries Integration

Certain facts and inferences, which arise from a careful study of this chapter, would seem to indicate a vital bearing of transportation factors generally upon the proposed economic integration of the fishing industry. Some of these are given below, subject to adjustment and co-ordination with other findings of this report in Chapters XVII and XVIII.

(*a*) More emphasis might be given to shipment by rail rather than by steamer, except for local collection services to nearby Canadian plants. In this connection, consideration should possibly be given to replacing subsidized collection vessels, wherever possible—and this applies chiefly to those engaged in the movement of live lobsters to the Boston market—by equivalent or other subventions to the railways, wherever it can be shown that at least equal or better service can be rendered. This would tend to increase such rail traffic materially and, in the long run, bring down its costs. The subvention, therefore, would not need to be granted for more than a specified number of years.

(*b*) Overhauling of railway rate schedules, to remove some of the existing anomalies, seems highly desirable, but such overhauling should be structural rather than affect the net revenue accruing to the railways. Some, at least, of these anomalous items would bear reference to the Board of Railway Commissioners for Canada. No satisfactory reason has been advanced in any instance as to the wisdom of a general reduction of rates.

(*c*) Quick freezing greatly intensifies the importance of transportation, since low and constant temperatures are required, to an extent far greater than is true of sharp frozen fish. While several new types of cars have been introduced in the United States recently, none of these has yet shown its economic superiority over the best ice and salt methods. In the relatively cooler (than in the United States) climate of Canada, the latter have apparently demonstrated their satisfactory nature. Constructive efforts are being made by both railway companies to improve existing insulation of these cars. This policy of concentrating expenditure of effort and research on the improvement of existing facilities and methods would seem to be more productive of valuable results than devoting too much attention to the newer and more spectacular methods such as the silica gel and dry ice cars.

(*d*) Existing railway facilities appear to be in adequate condition to render full and efficient service in any plan for wide extension of the distribution of quick frozen fillets, steaks, etc.

(*e*) Regular shipments of quick frozen sea foods would seem to be conducive to marked transportation economies over those of iced fresh fish, when implemented on a large scale.

(*f*) Refrigerated trucks have already proved their value in certain districts (the Gaspe Peninsula for instance), and their use will undoubtedly be extended to others where rail and steamship facilities are relatively unsatisfactory or inaccessible. They do not require very serious consideration, however, as potential competitors of the railways in this field.

(*g*) The aeroplane has so far proved valuable chiefly in deliveries to the "custom" trade. The price differential over fish moved by other means must be such as to cover the additional costs (and possibly risks) of air transport.

(*h*) The current practice of the fish trade in Quebec Province, which insists on a heavy proportion of fresh fish being consigned by freight rather than express, would appear to have some relation to the relatively low per capita consumption of fish in this province, indicated earlier in the report. Seldom, if ever, can fresh (unfrozen) fish arrive in anything like as good condition by freight as by express shipment.

CHAPTER XIV—FISH INSPECTION

The large majority of those interviewed showed themselves desirous of stricter inspection even if they themselves were to come within its sphere.

Strict and adequate inspection of food is an essential preliminary to successful distribution and marketing. This has already been proved to be true of meat and meat products. The purchase of fish is not accompanied with such confidence as in the case of the purchase of meat. This is due to the fact that fish have hitherto reached the consumer's table in an unattractive condition, resulting in a large proportion of the consumer's market being apathetic towards the use of fish.

Whether the inspection of fish comes within the federal or the provincial legislative sphere or both, must, for the present, remain an open matter.

There is no doubt, however, that the inspection of retail fish stores is within the municipal sphere, which is, in essence, provincial jurisdiction. In following the distribution of fish, it is at present difficult to say where the provincial sphere ends, and where the federal begins, if at all. With the more vigorous enforcement of inspection laws, it is possible that this issue will have to be decided.

It is evident that existing legislation is not altogether successful in practice, and some attempt should be made to strengthen the entire system in such a way that distributors and consumers of fish will be cognizant of its presence.

In the full report there follows a brief outline of the existing federal legislation on fish inspection..

Full Inspection Prescribed

An examination of the inspection laws indicates that they are rather indefinite as regards the inspection of fish. It seems that, as far as the statutes are concerned, they cover the inspection of all foodstuffs which must necessarily include fish. There appears, however, to be a good deal of overlapping. For example, pickled and cured fish are provided for in the Fish Inspection Act, oysters in the Fisheries Act, canned fish in the Meat and Canned Foods Act and fish generally in the Food and Drugs Act. It would appear that the Food and Drugs Act provides a statutory basis for the inspection of fresh and frozen fish. One drawback, however, is the insufficiency of the practical inspection under this Act, for the reason that only twenty-five inspectors have been appointed. Moreover, the inability of inspectors to condemn on view, but only after official analysis has been made, weakens the Act considerably in practice.

Extent of Inspection and Enforcement Slight

While the provisions for adequate inspection may exist, the degree to which they are actually enforced is largely problematical. For example, there may be inspectors appointed under the Fish Inspection Act or the Meat and Canned Foods Act who have no authority under the Food and Drugs Act which may prove to be the real basis for the adequate inspection of fish, whereas it is probable that under the latter Act, those inspectors which have been appointed, concern themselves chiefly with the inspection of drugs.

It is obvious that if under the Food and Drugs Act, inspectors have merely been appointed, and the Governor in Council has not otherwise provided for the inspection described, then the Act is without real meaning and force, and it is more than likely that the Food and Drugs Act permits the inspection of all kinds

of fish (except canned) in the hands of anyone who attempts to offer it for sale. This Act may be well enforced as regards drugs but this does not necessarily mean that it is likewise effective as regards foods, especially fish.

It should be remembered, too, in justifying the inspection of fish under existing legislation that the statutory definition of "meat" is such that it includes fish. It is reasonable to assume, therefore, that the authority exists for the inspection of fish to the same extent as that of meat.

Strengthening of Laws must be Combined with Co-operation in the Industry

It must be concluded that the Federal Inspection Acts are at present very uncertain. To be effective, the system must undoubtedly be strengthened. In this regard, the suggestion is offered that some attempt be made to consolidate and unify all existing laws on the inspection of fish. This would permit clearer understanding of existing law, and would enable and facilitate revision and amendment, if, as, and when, circumstances demanded.

Such strengthening of existing legislation, whether merely by amendments to, or consolidation of, the Acts concerned, or by the provision of more stringent or enforceable penalties, or by securing the co-operation of each provincial authority in passing identical or confirmatory legislation to forestall constitutional disputes, or by increasing the number of inspectors or by exercising more care in the selection, or by a better arrangement of districts—these are insufficient of themselves. In such a scattered industry as that herein described, with wide variations in the technical means by which each species is caught, processed, shipped and stored, formal inspection by government authority (whatever its source) is of doubtful and limited benefit unless supported, in their own interest, by producers, associations of producers and the trade. It is of inestimable benefit and profit to them for fish to move to the market in uniformly good condition. Any producer who hides behind the genuine efforts of his legitimate colleagues, to foist an improper product on the public should be commercially outlawed by the trade itself.

CHAPTER XV—DISTRIBUTION

The distribution of fish is probably a more complex process than that of any other commodity. Between the fisherman and the consumer are producing companies, shippers, brokers, commission merchants, packers, canners, wholesalers and retailers, each performing some particular and specific function, and therefore each exacting a return for his effort and service. It is generally admitted that in almost every industry the major problems of production are susceptible to straightforward solution, and that it is the sphere of distribution that should be subjected to the most searching analysis, if the goal of co-ordination is to be approached or attained. This chapter is, therefore, devoted to an analysis of the existing system of distribution, the aim of which is to place the fish before the consumer in as good a condition as possible at the lowest price commensurate with rational cost and adequate profit to each of the intermediaries.

Distribution of Ground Fish

Vessels engaged in the ground fishery may salt or ice their catch on board. When they reach port, they may be sold fresh to a local buyer who acts either as the representative of producing companies, packers and other interests, or independently. It is his duty to see that the fish are properly prepared and shipped to market, the latter being a broker who buys and sells but does not handle, a commission merchant, a wholesale distributor, or even a retail dealer if he is able to buy in quantity. In the case of those who specialize in the cured fish trade, the fish when landed are smoked, pickled or salted and dried by the fishermen themselves, or sold to local curing establishments. When curing is completed the fish are bought up by local or itinerant buyers, usually representing merchant importing interests of important external markets.

The practice of shore fishermen largely follows the same lines, though a large part of their difficulties arise by reason of distance from the producing and shipping interests.

As has already been pointed out every economic consideration in the case of the isolated points suggests the concentration of their effort on bringing up the standards of their cured product rather than in a futile struggle for comparatively inaccessible fresh fish markets that can never absorb more than an incidental proportion of their catch.

Distribution of Other Species

Lobster fishermen dispose of their catch in three ways, direct to a cannery or to a canner's buyer, to a dealer in live lobsters who collects and ships to the live lobster market, or they crate and ship their own lobsters to a commission dealer in Boston or New York. Fresh water fish are mostly shipped to markets in the United States chiefly through commission houses. In the domestic market it is disposed of through wholesalers, commission agents, meat packers, retailers and pedlars.

The information given by producers and shippers would indicate the fact that in the Maritime Provinces the majority of the companies interviewed reported the shore fishermen as their sole source of supply.

The existing importance of middlemen in the distribution of fish is shown by the fact that about one half of the wholesalers interviewed reported that their purchases are made chiefly from brokers and shippers.

Too Many Intermediaries Theoretically Undesirable

It is universally recognized as desirable that a large number of middlemen between the producer and the consumer should be eliminated. That the spread between what the fisherman obtains and what the consumer pays should be reduced. And yet, if the wholesaler in general performs very necessary and valuable tasks, the functions of the other middlemen in the fishing industry are at least equally useful.

Distribution of Fish more Complicated than that of other Commodities

Three factors constitute the difference between the distribution of fish and that of other comparable food products, its extreme perishability, its variety and the localized source of supply. To insure that fish shall be marketed in good condition necessitates storage facilities, and to supply these a considerable capital outlay is required, which only large companies are normally able to furnish. If a fisherman's co-operative is to function efficiently, there must be a cold storage plant to insure continuity of supply, and if fish are to be held in cold storage until the market is ready to absorb them, the fisherman must be content to dispense with immediate returns and even to absorb temporary and periodic losses. Apart from that there is the further problem of variety. The retailer's stock is determined by consumer demand, he must carry oysters from New Brunswick or the United States, halibut from British Columbia, whitefish from the inland lakes, cod and haddock from Nova Scotia, salmon from British Columbia or Gaspe, and many other species. Consequently his purchase of each of these species is relatively small, and, though he may with satisfaction obtain the fish for which the demand is greatest direct from the source, for the bulk of his stock he turns to the wholesaler who carries this variety for him.

Previous Co-operative Schemes have Mainly Ended in Failure

The establishment of co-operative schemes, particularly co-operative marketing, was the suggestion most frequently advanced by fishermen as a means of improving the distribution of fish and eliminating the middleman. Such movements, however, have met with little success. A number of fishermen and shippers joined an organization in New England some years ago, but the scheme came to nothing when they found that they had to wait for returns. Fishermen in Manitoba met with disruption when they attempted an organization on the same lines as the Wheat Pool. Recently the halibut fishermen of Prince Rupert suffered the same thing, though they had salesmen both in Canada and in the United States selling direct, the falling market disheartened them, so that they sold their fish at a loss and finally went bankrupt.

Advantages of Co-operation

There is no doubt, however, that a co-operative scheme satisfactorily established could probably effect definite economies in distribution.

Barriers to Successful Establishment of Fishermen's Co-operative

A large part of the existing difficulties which fishermen face is due to the falling market for dried fish, which has caused them to turn to the fresh fish business in the hope of greater return. Very different technical methods are, however, involved in this, and it is doubtful whether the fisherman appreciates both the functions and the processes of the existing middlemen and the financial risks they are prepared to take in the handling of fresh fish. Were excessive profits being made by these intermediaries the situation would be different, but under existing circumstances these companies can hope to work at a profit only in certain months of the year. Success in this field of the industry depends not so much upon experience in production as in merchandising ability.

Co-operation, not Antagonism, Essential

It would therefore, appear to be in the best interests of the fisherman to work in co-operation with fish distributors and wholesale dealers, who already have the experience, the capital and the facilities required for handling and selling fish satisfactorily. Co-operative organizations among fishermen, however, would enable them to purchase their supplies cheaply, to improve their catching and processing facilities, their grading and production methods, and to regulate, in some measure at least, their production in order to eliminate the gluts that occur from time to time. It would appear unwise and unprofitable for them to go too far along the road of distribution. That wholesalers encourage such schemes in the hope of getting cheap fish from inexperienced fishermen should be taken as a warning.

Suggestions of Fishermen

Apart from the desire for the extension of co-operative groups, fishermen and vessel owners in the interests of better distribution advocate:—

1. The appointing of agents to travel among fishermen demonstrating most approved methods of preparing fish for sale.
2. Closer contact with trade commissioners.
3. Better grading and inspection of fish to insure that none which is unfit for human consumption will be marketed.
4. Greater control of the irresponsible fish pedlar.
5. The establishment of fish auctions.
6. Systematic and continuous publicity to develop the fish eating habit in Canada.

Suggestions by the Trade

Suggestions from wholesalers were chiefly concerned with the desirability of improved preparation, grading and packing, particularly cleanliness.

The average retailer is not sufficiently familiar with the distribution of fish to offer many constructive suggestions, but they have mentioned the following:—

1. A more liberal use of ice should be made in shipping.
2. Less time should be taken in transit.
3. Fish should be more thoroughly cleaned before shipment.
4. Fish should be shipped in smaller lots.
5. More inspection at all stages is desirable.

Wholesalers' Mark-up on Canned Fish Higher in East

Wholesalers' replies indicate that on salmon, sardines and lobster there is a gross profit of approximately ten per cent. On both salmon and sardines it tends to be higher in the East than in the West. This may be partially explained by the necessity of covering transportation costs. It is not entirely valid, however, since the average mark-up on sardines is highest also in the East. Wholesalers in the Maritime Provinces obtain 13 per cent, but the figure declines westwardly and is as low as eight per cent in the Prairie Provinces.

Large Volume of Inland Fish Handled by Wholesalers

The analysis of the sources of the fish handled by wholesalers is of some interest. On the British Columbia coast it is almost entirely fish caught in Pacific waters. Atlantic fish increase in importance as one goes eastward, and constitute more than three-quarters of the fish sold by eastern wholesalers. The proportion of inland fish handled in the Prairie Provinces, Ontario and the Dominion as a whole, is approximately 33 per cent of all fish sold by the wholesalers who replied to the enquiry.

Retail Outlets for Fish

The fish store is said to be the preferred outlet by 36 per cent of the consumers, particularly in the coastal areas and in Ontario. The independent butcher is patronized by 46 per cent in Quebec. Chain stores have a high measure of popularity only in the central provinces, while the importance of department stores is apparent only in the West. The independent butcher and grocer in the supply of smoked fish, etc., are patronized by 26 and 25 per cent of consumers respectively, as compared with 22 per cent who favour the fish store. Canned fish products are strictly a grocery commodity; the independent grocer is patronized by 47 per cent of consumers and the chain grocer by 34 per cent. Only 11 per cent purchase their canned fish from the department store, six per cent from the independent butcher and two per cent from the fish store.

One Day a Week Sales

It is worth noting that many authorities in the industry believe that the day of the specialized fish store is past, as with present prices and business concentrated practically on one day a week it is hard to show a profit. It is felt that the future is brightest for the chain store which can cut its costs and reduce prices to the consumer, with consequent increase in turnover. Only when fish takes its place as part of the regular daily diet of the Canadian household will the fish store proper be enabled to strengthen its position.

The frequency with which retail stores purchase fish varies considerably. In the Dominion as a whole, while 26 per cent of the stores interviewed make their purchases twice a week, 24 per cent purchase only on one day. Three purchases a week is practised by nine per cent and four by six per cent. Daily purchases are reported as being made by as many as 35 per cent. By types of store independent butchers purchase less frequently than others, 44 per cent reporting that they buy once a week, and 30 per cent on two days. More than half the specialized fish stores purchase daily, as do 27 per cent of the department stores, and 32 per cent of the chain stores. More than half the department stores and nearly one-third of the chain stores, confine their orders to two days a week.

Fish is bought on Thursdays by 85 per cent of those dealers interviewed, on Tuesdays by 63 per cent, on Wednesdays and Fridays by 52 per cent, on Mondays by 47 per cent and on Saturdays by 35 per cent.

Examination of the evidence would suggest:—

1. That Friday and Saturday buying is not susceptible to any material increase as far as the numbers of dealers purchasing are concerned, though the average size of order might be enlarged.
2. The comparative evenness of the proportion purchasing on each day is rather more pronounced than might have been expected, and indicates the general desire of retailers to stock really fresh fish.
3. On the other hand, Thursday and possibly Friday orders may be assumed to be much larger in average size than those of other days, which would mean that the actual weekly fluctuation in fish sales is much less even.

Displays of Canned Fish

That daily displays of canned fish are made was reported by 37 per cent of the dealers, while 15 per cent make a display once a week. Twenty-five per cent of the general stores and 16 per cent of the independent grocers state that they seldom or never display canned fish. Daily displays were reported by 59 per cent of the department stores and by 41 per cent of the chain stores.

Special sales of canned fish are arranged frequently by chain and department stores. Sales once a week or more frequently are reported by 30 per cent and 41 per cent of these outlets respectively. Fifteen per cent of the general stores and only nine per cent of independent grocers make special sales.

Though 14 per cent of the chain stores and 12 per cent of the department stores state that special sales increase their turnover of canned fish by 200 per cent or more, this is exceptional. An increase of less than 20 per cent is reported by 29 per cent, while 18 per cent put the increase at from 21 to 40 per cent, and 14 per cent at 41 to 60 per cent. Turnover appears to be increased by special sales to a greater extent in Ontario than in other areas, while chain stores achieve better results than other types.

Canned salmon is more frequently offered at special sales than any other product. Sardines are featured only half as often, and canned lobster follows next. In the Maritime Provinces lobster is offered more often than sardines, but in British Columbia it is never featured.

Relative Position of Chain, Department and Specialized Fish Stores

The specialized fish store appears to be the most important single outlet in supplying the consumer, and, as might be expected this store purchases fish more frequently than any other.

Chain stores, however, are rapidly approaching a position of importance. Their enormous buying power enables them to obtain adequate attractive display and low temperature refrigerating equipment to far better advantage than independents.

The department store enjoys no advantage over the chain in retailing fish, and is even at a disadvantage in some respects. The housewife is far more likely to go around the corner to the nearest chain store when desiring to purchase fish than to make the trip downtown to the department store. The prevailing uncertainty among consumers as to the price and quality of fish encourages the shopping habit with respect to it, and thus is one basic weakness of existing retail distribution which the chain, if properly equipped and supplied, can do much to remedy. The cost of prompt delivery of small units of purchase in a fish department has been found to be unprofitable, so that few of the great department stores make a practice of pushing or even stocking fresh fish.

It may be assumed, therefore, that the future of the retail distribution of fresh fish must be built chiefly around the food chain and the specialized fish store, though the latter can never compare, in a country of great distances, with its present importance in Great Britain.

Canned fish, as already shown, is already passing into the hands of grocery chains, and to a much smaller extent, department stores. Since canned fish is in fact as well as principle a "convenience" food, the advantages of this greater availability of the product, through a maximum diversity of outlets, are clearly apparent.

The Ideal to be Aimed at in Retail Distribution

The emphasis upon the chain, specialized fish and department stores should not, however, obscure the importance of holding the support of fish selling by the independent grocer and butcher. These are practically the only outlets to be found in large sections of the country, and it is well to maintain the element of competition as a stimulant of the more aggressive chains. Above all it must be borne in mind that the ideal of retail distribution to be aimed at is for fish to be handled in the best possible condition, profitably yet cheaply, in every provision store, just as the ideal attitude of the consumer which the industry and trade should seek to foster is one which regards fish, especially fresh or frozen fish, as reliable, palatable, regular, and above all convenient diet, of standard and unquestioned quality, readily available on any working day of the week at a fair price, and capable of preparation for the table in a variety of attractive forms. Both these objectives are beset with baffling and almost insuperable difficulties. They can never be fully attained, but they can be approached and partially achieved to the genuine and lasting benefit of all concerned.

CHAPTER XVI—FISH MERCHANDISING AND ADVERTISING

This chapter deals especially with the experience of Great Britain, United States, Germany, Norway, Japan and of Canada in the merchandising and advertising of fish and fish products. It is not exhaustive and portrays only those facts, plans and results which appear to have a bearing on Canadian policy. Some discussion is undertaken of the justification or otherwise of fish advertising, whether carried out by individual producers, by groups of producers, by the whole industry, by the Government or by all of these.

Great Britain

The annual consumption of fish in Great Britain of 40 pounds per capita is due to the fact that fresh fish of high quality, and in wide variety, is available to consumers at all times. Such ready supply is to be found in thousands of small shops, located in close proximity to consumers' homes. That this condition exists is the result of a particularly efficient system of distribution from producer to ultimate consumer, suited to the requirements of a dense population.

It is obvious that in Canada where a large proportion of the inhabitants lives at a great distance from the sea coast, and even from inland waters, a similar organization is not only impractical but also undesirable in view of different habits on the part of the buying public.

Regularity of Supply

The regularity and continuity in the supply of fresh fish are the result primarily of the extension of steam trawler operations during the past fifty years, and, in the second place, of the free entry of fish from other countries.

Trawlers land fish daily at large port markets, and selling begins at approximately eight o'clock each morning. The entire daily landed catch is invariably sold by eleven o'clock.

Fish merchants then begin to fill orders received by telegram and telephone, and the last shipments are off by six o'clock in the evening of the day the fish were landed, arriving at their destination the following morning.

Fried Fish Shops, Hawkers, Etc.

These institutions are common to the whole of England, and provide the final link in the chain that keeps up a constant, freshly caught, rapidly transported, and widely variegated supply of fish.

In Canada such numerous specialized retail outlets are impractical owing to the sparseness of population, and of problems of preservation during necessarily lengthy storage and transport.

Advertising

The British Trawlers' Federation in 1929 opened an advertising campaign designed to run for five years at a total expenditure of $1,250,000, this sum being contributed by trawler owners. The central theme is "Eat More Fish" and includes newspapers, posters, direct mail, and recipe leaflets, as media. It is stated that the results of the campaign have been highly successful, and that the increased demand for fish has caused increased work in shipbuilding yards.

The United States

Conditions in the British fishing industry exemplify the operation of an intelligently controlled program, resulting in the formation of the industry into a completely integrated unit. The situation in the United States is different,

where forethought has been concerned mainly with separate branches of the industry, and where advance planning has been lacking, in so far as it concerns the industry as a whole. The effects of this disorganization are seen in the small per capita consumption of fish in the United States, which is only 16 pounds per annum.

Efforts of the Federal Government

Activities of the federal Government with regard to fish fall under the jurisdiction of the Bureau of Fisheries in the Department of Commerce.

During the World War, propaganda, including poster advertisements and cookery demonstrations, designed to encourage observance of "Fish Day," served to bring to the attention of the public the value of edible fish. At present considerable literature is available for distribution, including studies of wholesale and retail fish trade in various cities. While no publication advertising has been used by the Bureau for a number of years, co-operation has been extended to the fishery associations and other agencies by providing material for such advertising.

United States Fisheries Association

This association is composed of firms engaged in all branches of the industry. It undertook recently to assist the industry through advertising. It was originally intended to collect subscriptions from members amounting to $150,000. The amount obtained, however, was only $50,000, and the association had to resort to other publicity work.

The first move was to compile a fish recipe book, which the members of the association could have at cost for distribution among their customers, and over 250,000 were distributed.

An effort was next made to interest editors of home and women's magazines and women educators in increasing the consumption of fish. As a result, these were influenced to write articles for their magazines on fish and its preparation.

The association advertised in 800 newspapers, copy consisting of short items concerning fish and its use, and statements of different people regarding the use of fish in hotels and other institutions.

When the publicity work of the United States Fisheries Association ceased, the Massachusetts Fisheries Association purchased all the remaining fish recipe booklets. These were distributed to the public by the members, after the name of the distributor had been placed in the booklet as an advertisement.

For the past three years, the Massachusetts Fisheries Association has been responsible for conducting a cooking school in Boston one night a week for ten weeks during the winter.

Oyster Growers Association

Some years ago an epidemic of typhoid fever occurred in Chicago. It was alleged that oysters caused the epidemic. It was afterwards found by scientific investigation that oysters had not been responsible for starting the epidemic, nor had they been conspicuous in spreading it.

Nevertheless, much damage was done to the business of producing and marketing oysters in the United States. The Oyster Growers Association therefore proceeded to counteract this effect by an advertising campaign. For conducting this campaign members contributed two cents a bushel based on the previous year's output. One year's appropriation mounted to $100,000. The advertising campaign was entirely successful in overcoming the unreasonable prejudice against oysters that had been built up. It had the further advantage of stimulating the oyster growers and dealers to install the most up-to-date processing and sanitary equipment.

Several private fish producing firms in the United States have carried on extensive advertising campaigns on their own behalf. One company in Gloucester, Massachusetts, in 1930 appropriated approximately $240,000 for advertising purposes; the company used newspapers, radio and billboards. The sales manager of this firm stated as a result of his experience two characteristics of fish consumers became apparent:—

1. That men eat more fish than women.
2. That consumer resistance, even for canned fish, is least noticeable in regions where fish are caught.

Another company in Gloucester, Massachusetts, whose business is done practically all by mail direct to the consumer, carries on an advertising campaign approaching 25 per cent of gross sales in a normal year. Their advertising, of course, carries the whole burden of the distribution scheme, as there are no salesmen, wholesalers or retailers involved.

Pacific Coast Activities

Californian fish producers have formed a marketing organization known as the State Fish Exchange. It has used considerable newspaper space to increase the general consumption of fish. An important element in the association's campaign is the featuring of price. This allows the retailer a fair margin of profit but prevents excessive quotations being made to consumers. Apart from the publication of a cook book, no advertising assistance has been given by the state of California to its fishing industry.

Japan

Fish is such an essential of the diet of the Japanese people that practically no institutional advertising of fish has taken place in that country, either by the Government or by private concerns. The highly developed export trade in canned crab meat, however, has been stimulated by advertising expenditures, chiefly in the United States. This has been done by the Japan Crab Cannery Association.

Newfoundland

The Government of Newfoundland has not sponsored any advertising of fish either locally or abroad, nor have private firms undertaken anything but mere price announcement advertising. The only exceptions have been a display at Wembley in London of sea products and poster advertising of Newfoundland frozen salmon in England by the Empire Marketing Board.

Norway

Norwegian Cod Liver Oil is advertised in British, Norwegian and Continental newspapers by the National Committee for Promoting the Consumption of Norwegian Cod Liver Oil. Norwegian fishing companies, with the co-operation of the Government, have also carried on an aggressive "Eat More Fish" campaign in their home market which may be presumed to account, at least in part, for the 70 pounds consumed per capita in this country.

Germany

The advertising of fish is done chiefly through the German Sea Fish Propaganda Committee. It is a co-operative association sponsored by the state and organized as a non-profit making corporation. It is financed by the fishery companies and the government in equal shares with smaller contributions from wholesalers and retailers. It is asserted that with a moderate advertising expenditure, the per capita consumption of fish, as well as the average price, has been substantially increased during the past few years.

Per Capita Consumption

Per capita consumption is not so much effected by distance as by constant supply of suitable fish. It is noticeable that in some countries where distances from the sea coast are small, consumption of fish is great. The change in the form of the product which accompanies transport or storage for long periods appears to be the factor limiting use by consumers. In other words, if a system can be established whereby truly fresh fish is constantly available at reasonable prices and consistently made known to the public as such, then the problem of consumption is a long way towards solution. It is such a system which must be found for the Canadian industry.

Canada

It should be pointed out, in advance of discussing the history and present position of fish advertising in the Dominion, that advertising without adequate merchandising (i.e., the efficient and economical co-ordination of producing and distributing facilities), or at least the reasonable assurance that such merchandising and economic integration will be commenced and carried through, is of little permanent value. Under such conditions, it can be regarded only as a temporary palliative. If, however, the industry itself, in all its divisions and associations, expresses willingness, and gives sufficient evidence of serious effort, to place itself upon a sound and businesslike basis, then advertising both in general and on particular features and species is a highly necessary lubricant.

Advertising Campaigns of 1917-18 and of 1925

Owing to the shortage of food during the war years, the Food Controller of that time inaugurated a campaign to increase the production of fish food as an available substitute for beef and bacon.

Some of the results of the efforts of the Fish Committee appointed by the Food Controller for this purpose were as follows:—

(*a*) Institution of a Sea Food Special train to remedy the "notable lack of transportation facilities in marketing Atlantic fish." This train, starting from Mulgrave, Nova Scotia, picked up fresh fish from several important points and delivered them to Montreal in 48 hours. Shipments for Ontario points were carried to Toronto and there distributed.

(*b*) The problem of retail handling was found to consist chiefly in the lack of proper refrigeration and display, and a fish display case, designed by the Marine and Fisheries Department, was supplied to butchers and small retailers of fish at half the cost, the Government bearing the other half—ten dollars. In this way, 300 cases were distributed to butchers and fish dealers throughout cities and towns east of Winnipeg.

(*c*) The Fish Committee compiled and supplied a cook book, containing simple recipes and advocating the introduction of fish not commonly used, but in themselves most desirable and easily obtainable. Copies to the number of 100,000 in English and 50,000 in French were printed and distributed throughout the Dominion.

(*d*) Extensive advertising was conducted particularly in the province of Quebec, and "so stimulated the use of fish as very materially to increase per capita consumption." Every assistance was rendered to the Fish Committee, in every province, by the Union of Canadian Municipalities.

The industry has stated that the 1917-18 campaign, as well as the campaign of 1925, were most beneficial to their business, but that much of the advantage was lost in each instance through cessation after a brief period.

The 1925 campaign was an attempt at joint contribution by the Government and the industry. It succeeded in the temporary stimulation of the public consumption of fish.

During the month of October, 1930, a record was kept of the number of advertisements appearing in every daily and weekly newspaper in the Dominion.

The exceptionally small size of fish insertions in Canadian newspapers is indicated by the fact that the average size of the 3,427 advertisements was only 10·6 lines, approximately three-quarters of an inch in single column width. This shows that the bulk of fish advertising, as carried on at present, is designed to sell price rather than commodity.

More than half of the lineage classified was run by chain stores, 20 per cent by independent grocers or butchers, 11 per cent by department stores, eight per cent by fish stores, and three per cent by wholesalers or producers. The result of this marked preponderance of chain store advertising is that a greater amount of publicity is given by chain stores than by any other group to every single type of fish.

Considerations Respecting Government Assistance in Achieving Greater Consumption of Fish

The main considerations respecting Government assistance in the form of advertising in the domestic market are as follows:—

(*a*) The interests of the consumer in being able to procure fish of assured and standard quality, and at reasonable prices.

(*b*) The interests of the fisherman and of the fishing industry in securing the most convenient outlet (i.e., the domestic one) for their products, with a fair return for the effort involved, and including independent advertising effort on the part of associations, groups and individual firms.

(*c*) The interests of the fish and general, wholesale and retail food trade in securing more regular demand for fish, therefore lower costs in handling and distributing it, and finally through competition or otherwise, by being able to narrow the present spread between producer and consumer prices. It would also encourage, if consistently conducted, the purchase of adequate storage and display facilities as indicated in Chapter XV.

(*d*) The interests of other food industries in the Dominion, particularly perishable foods, by creating a vacuum in existing foreign demand for their products, far greater than any substitution which may take place. (For explanation of this, see earlier paragraph in this chapter on Canadian Fishing Industry's Opportunity in the United States.) Other advantages to these food industries would come indirectly from improved retail refrigeration and display facilities to be used jointly for fish and other products.

(*e*) The general public interest including the resuscitation of a perennially depressed industry, the health and nutritive values of fish as a necessary article of diet under modern conditions, the greater business available to the railway and other transportation companies, and as an experimental effort, the plan being considered as a whole, which may later be adapted and applied to other perishable food industries in the Dominion.

CHAPTER XVII—CONCLUSIONS

(A) CONCLUSIONS AS TO FACT

1. Canada has a per capita fish production of 120 pounds, and a per capita fish consumption of 20·7 pounds.
2. The primary and secondary branches of the Canadian fishing industry employ over 80,000 persons, representing a directly dependent population of approximately 400,000, exclusive of those engaged in wholesale, retail, cold storage and transportation activities in regard to fish.
3. The annual per capita consumption of meats and poultry in Canada is over 160 pounds or about eight times that of fish.
4. The per capita consumption of eggs in Canada is approximately 40 pounds (30·9 dozen per annum), or about double that of fish, exclusive of the greater wastage in the latter.
5. The per capita fish consumption of Great Britain is 40 pounds, of Norway 70 pounds, of Germany 20·7 pounds, of the West Indies about 33 pounds, of Australia 13 pounds, of Ireland only 9 pounds.
6. The proportionate relation between the respective values of annual fish production, consumption, imports and exports (each taken as a whole) has shown no material change in the past five years, except insofar as a small decrease has taken place in exports since 1928.
7. Imports account for approximately 20 per cent of the value of fish consumed in Canada. The most important items in imports were, in the fiscal year 1931, in order of value, and with percentage respectively of the total value of imports: sardines 20·1 per cent; fresh oysters 12·1 per cent; herring, salted, 11·2 per cent.
8. Canada now exports over 80 per cent of the tonnage of fish produced, and 70 per cent of its value. Of Canadian exports, canned fish (largely salmon, and followed by sardines and lobsters) accounted for 38 per cent during the past decade; fresh fish for 30 per cent; cured etc. fish 28 per cent; and fish oil and meal, etc. for 4 per cent. Canned fish exports have been declining since 1926 both relatively and absolutely; fresh fish exports are steadily increasing; cured, etc. fish exports have fallen since 1926, but chiefly during 1931. The most remarkable increase has taken place in exports of fish meal and oil.
9. The United States leads all other markets in the matter of Canadian fish exports, though these are chiefly in the form of fresh and frozen fish. The value of such Canadian fish exports to the United States is slightly more than 11 times the value of Canadian fish imports from the United States.
10. Salmon accounts for one-third of the value of Canadian fish production; cod and lobster come next; then halibut, herring, whitefish and haddock, in the order indicated.
11. At the beginning of the past decade the sea fisheries accounted for 90 per cent of the total value of fish produced in the Dominion. The doubling of inland fisheries production has reduced the proportion of sea fish to 80 per cent of the total.
12. The present and recent value of Pacific Coast fish production exceeds that of the Atlantic Coast by the approximate ratio of 5:4, whereas in 1921 the situation was exactly the reverse. Ontario's production consistently

exceeds Quebec's, as also has that of the Prairie Provinces since 1926. Nova Scotia's production consistently exceeds that of the other three Atlantic Provinces combined, and British Columbia's has nearly equalled, or exceeded, the combined production of the other eight Canadian provinces since 1923.

13. The most striking increase in any type of fisheries production in recent years has been in the fish oil and meal group, output of which is largely exported.
14. Canadians serve fish at nine meals a month on the average, though this would leave only $2\frac{1}{4}$ ounces as the average amount served per person per meal (including inedible portions unless fillets are purchased), if the per capita consumption in households only is 15 pounds a year.
15. Present differences in frequency of meals served with fish depend almost entirely on geographic location, and not upon variation in purchasing power between the different classes in each area.
16. Regional monthly frequency of serving fresh fish at meals in households is in the following order: Maritime Provinces 6·3; Quebec 5·6; British Columbia 4·9; Ontario 4·5; Prairie Provinces 4·1.
17. Regional monthly frequency of serving canned fish at meals in households is in the following order: Ontario 3·5; Prairie Provinces 2·8; British Columbia 2·7; Maritime Provinces 2·1; Quebec 1·7.
18. Regional monthly frequency of serving smoked and cured, etc. fish in households is highest in the Maritime Provinces (3·3 meals) and lowest in Quebec (0·7 meals).
19. Regional monthly frequency of serving fish of all types at meals in households is in the following order: Maritime Provinces 11·7; Ontario 9·2; British Columbia 9·0; Quebec 8·0; Prairie Provinces 7·9.
20. Monthly frequency of serving fish at meals in households by main types of fish is in the following order: fresh or frozen 4·9; canned 2·7; cured 1·2.
21. Only slight differences exist in the apparent consumption of fish by the various income classes. There is, however, a distinct tendency towards greater amount of fish consumed by the first than by the other two classes, though in Ontario the third class uses it the most frequently.
22. Restaurants in Canada serve fresh fish at 17·3 meals a week, those in British Columbia showing the lowest frequency with 13·5, and the Prairie Provinces the highest with 18·1.
23. Cafes serve fresh fish at 11·4 meals a week, with the highest frequency in British Columbia (15·7 meals) and the lowest in Quebec (8·9 meals).
24. Smoked fish is served by restaurants, cafes and institutions generally on an increasing scale of weekly frequency from east to west. The general averages are: restaurants, 8·2, cafes 3·2, institutions 0·5.
25. Canned fish is served, on the average, as follows: restaurants 8·5 meals a week; cafes 3·6; institutions 0·6. In cafes and restaurants it is served most frequently in the four western provinces.
26. Institutions (hospitals, etc.) are very infrequent users of fish.
27. Restaurants and cafes seldom make a specialty of sea foods in table d'hote meals as an attraction to tourists and other guests.
28. One out of five Canadian families dislikes fish. This proportion varies little, either by economic area or by income class.
29. General reasons for dislike or non-use were chiefly (in order of importance): difficulty of getting good fish; high cost of fish; and, one quickly tires of fish.
30. Particular reasons for dislike or non-use were chiefly (in order of importance): the bones, particularly for children and people with defective eyesight; the unsatisfactory flavour of fish; its bad odour; and the lack of freshness in the fish bought.

31. The institutional market as a whole has a greater prejudice than householders against fish, as shown by the following percentages reporting general dislike of fish: institutions proper, 42 per cent; cafes and restaurants, approximately 25 per cent. The most frequent reasons advanced were: the flat taste of fish (particularly in cafes); its lack of freshness (chiefly in institutions); and the difficulty of cooking it.
32. The balance of consumer opinion is very slightly in favour of a fish meal being more economical than a meat meal. In the Prairie Provinces fish is regarded as being considerably more expensive, while the reverse is true of the Maritime Provinces. The retail price of fish is the most frequently given reason for its expense, but the desirability and the practical necessity of additional items in serving, and the waste in preparation were also mentioned.
33. The greater the frequency with which fish is used, the greater the variety in methods of preparation. Thus, lack of variety in preparing fresh fish is apparent in Ontario, but consumers usually practise several methods of preparing canned salmon, which is more popular in this province than in any other area.
34. Consumer demand for various species shows the following significant variations: Salmon is most in demand in every area except the Prairie Provinces, where it is replaced by whitefish; cod surpasses halibut in demand only in British Columbia (in this instance, black cod); the use of haddock decreases as one goes West, until in the four western provinces it is relatively unknown; whitefish is little demanded in other areas than Ontario and the Prairie Provinces.
35. The popularity of the various species shows comparatively little variation between the different income classes. Trout, whitefish, salmon, smelts and halibut tend to be purchased more frequently by the first class than the other two; cod and herring by the third class; and haddock by the second.
36. Haddock is the only species showing predominantly increasing consumer demand, according to retail dealers. Sales of halibut, salmon, trout, sole and pickerel, however, are increasing slightly. Herring and mackerel are meeting with decreasing demands.
37. The demand for fish is heaviest in spring and winter, and lightest in the fall.
38. Only five per cent of consumers prefer frozen fish, this verdict being based principally upon the assertion that frozen fish keeps better and because it is lower in price. Similarly, only five per cent of the retail dealers stated that frozen fish is preferred by their customers.
39. It is generally reported that frozen fish is tasteless, watery, and breaks up when it is cooked.
40. One-third of the consumers in the Maritime Provinces state that they have tried quick frozen fish; in other areas the proportion was considerably lower, particularly in Quebec. In Toronto, where they have been comparatively extensively advertised, 20 per cent have purchased quick frozen fish. In this city 50 per cent of the first class have bought them, 31 per cent of the second class, but only 16 per cent of the third.
41. Almost half the restaurants interviewed have sampled quick frozen fish, and approximately one-quarter of the cafes and institutions.
42. Only 11 per cent of the consumers, three per cent of the institutions, five per cent of the cafes, and three per cent of the restaurants believe quick frozen fillets to be superior to fresh fillets. The majority of those who have tried them, however, regard them as better than ordinary frozen fillets. The chief advantages of the quick frozen fillet are stated to be (in

order of importance): its flavour, its convenience for cooking, its freshness, and its freedom from bones and odour.

43. Almost one-third of all fish meals served in Canadian homes consist of canned fish.
44. Salmon is the most important species in the Canadian canned fish market, being used by 87 per cent of consumers. Sardines, used by 70 per cent, are next in importance, followed by lobster, which is used by 41 per cent. Only 27 per cent of consumers use any canned fish products other than salmon, sardines, or lobster.
45. Quebec provides an exceedingly narrow market for canned salmon in relation to other areas. As between income classes, third class consumers are less frequent users of this product.
46. Sockeye salmon enjoys greatest demand owing to its quality, colour being less important. Pink and chum sell largely on a price basis.
47. One-quarter of canned salmon consumers do not specify brand when purchasing. In addition, 11 per cent think " sockeye " is a brand name. Lack of brand knowledge is particularly noticeable in the Maritime Provinces and British Columbia. Brand ignorance is possibly the result of an excessive number of brands, 155 names being mentioned during the course of the investigation.
48. Consumers complain that excessive quantities of skin, bones, and sometimes inferior fish are packed in the lower grades, and that particular grades are not uniform in quality.
49. The proportion of consumers using sardines is consistent in all areas, approaching the average for the Dominion (70 per cent). In the institutional market, sardines are more widely used. Retailers in all areas report an increasing trend of demand.
50. Imported sardines are predominant in the market, being used by 45 per cent of consumers. Domestic are purchased by 30 per cent. The chief reason for the preference of imported sardines is quality, while domestic products are purchased primarily on a price basis.
51. Approximately one-third of consumers do not purchase sardines by brand.
52. Relatively high consumption of canned lobster occurs in the Maritime Provinces. In the rest of the Dominion, lobster is not widely used, but retailers report an increasing trend of demand.
53. Three-fourths of consumers serving lobster do not purchase by brand.
54. The use of canned fish products other than salmon, sardines, and lobster is consistently restricted throughout the Dominion. Of these " other " products, shrimp is the most important, while tuna, haddie, and crab are relatively popular. Japanese crab shows particularly increased use in British Columbia.
55. Of all fish meals served in Canadian homes, only 14 per cent consist of smoked, pickled, dried or salted fish.
56. One of the chief factors in the sale of smoked, pickled, dried, or salted fish appears to be price, since use increases among the lower income groups.
57. Few consumers criticized cured products. Some find them too salty, and others report purchase of stale or decayed fish. Others state that smoking is improperly carried out.
58. Sales of smoked fillets, finnan haddie, and kippers are increasing, while those of dried and boneless cod and salt herring are decreasing.
59. Three-quarters of the retail stores (other than specialized fish stores) prefer to handle meat rather than fish. This is particularly true of department stores, but the opinion of chain stores is less pronounced.

The great demand for meat is the most frequent reason for preferring to sell it. In the Province of Quebec, on the other hand, nearly two out of three of the dealers prefer to handle fish, due largely to the profit they make on it.

60. While wholesale prices of fish and meat, and the retail prices of meat have declined severely since the end of 1929, the retail prices of fish have remained relatively stationary. The decline in both the wholesale and retail prices of eggs has been more marked than that of either meat or fish.

61. Fresh or frozen fish is reported to account for 67 per cent of the wholesale fish dealer's business. Of this 51 per cent is fresh fish; 43 per cent air frozen; and six per cent quick frozen. Air frozen fish comprises as much as 71 per cent of the business of wholesalers in the Prairie Provinces.

62. As much as one-third of the total fish business of wholesalers is reported to be made up of inland fresh water fish.

63. The mark-up obtained by wholesalers on canned salmon, lobster and sardines tends to be highest in the East, and to decrease as one goes west, until the low point is reached in the Prairie Provinces. The general average for each of these products is approximately 10 per cent.

64. The fish business is characterized by a very large number of intermediates, each of whom, however, perform some definite function. This complex system is, in part at least, responsible for the spread of prices between what the fisherman gets and what the consumer pays.

65. The specialized fish store is still the most important source of supply of fresh fish for the consumer.

66. Though 35 per cent of the stores interviewed make daily purchases of fish, as many as 24 per cent purchase only on one day a week. Thursday purchases are made by 85 per cent, and 63 per cent buy on Tuesday.

67. Retail grocers assist the sales of canned fish by giving adequate display, and by putting on frequent special sales of this type of commodity. Canned salmon is most frequently featured in these sales, followed by lobster.

68. The conservation problem is much more a Pacific than an Atlantic one. The present policy in British Columbia appears to permit too many licences, and thereby uneconomically reduces the number of days a week in which fishing takes place during the season.

69. Shortage of bait still occurs wherever hooks and lines are used, particularly in the ground fishing off the Atlantic coast.

70. Herring and squid are the most popular types of bait, but sometimes alewives and clams are also used. Both fresh and frozen bait are employed; but sharp frozen bait is not very satisfactory. Quick frozen bait is strongly favoured by those who have used it.

71. Fishermen and vessel owners strongly recommend subsidized installation of bait freezers at many isolated points on the Atlantic coast, particularly in Nova Scotia and Prince Edward Island, and distribution by Government collection boats.

72. Some preservative for nets is needed. Experimental work in this connection has been undertaken in Great Britain and the United States.

73. The Government Collection Service is highly regarded in places now served. Others request equivalent railway express or freight subsidies.

74. Otter trawlers, though expensive to operate, are able to fish in weather and at seasons when dories and vessels cannot do so. They, therefore, increase the regularity in the flow of ground fish to the market, and so reduce distribution costs of all ground fish.

75. The Canadian ship-building industry cannot enter the field of trawler construction except at considerably higher cost than the shipbuilders of Great Britain and certain other countries.
76. Trap nets for catching salmon on the Pacific Coast present lower cost of operation than other types of gear in many instances. When used, the fish delivered to canners is usually in better condition than that caught by troll or by seine.
77. Of suggestions received for aiding fishermen, the most important are: revolving credits for purchase by groups of fishermen of larger boats and other more effective equipment; long-term loans and low rates of interest; further educational assistance for fishermen in the form of demonstrations, literature, fishing schools, etc.; more restriction and limitation of licences and even their cancellation in certain instances.
78. The canning industry accounts for 40 per cent ($21,000,000 in 1929), of all fish produced in the Dominion, about 10 per cent consisting of fish marketed fresh and almost all the remainder of canned goods.
79. The canning industry depends on export markets for 75 per cent of the value and 85 per cent of the volume of its production, the export sales being made almost entirely through brokers.
80. Of total canned fish production, salmon accounts for 68 per cent, lobster for 19 per cent and other canned fish (chiefly sardines) for 13 per cent.
81. The salmon industry is the most important single branch of the fisheries production in Canada, accounting for 28 per cent of the total amount of fish and fish products produced in 1929.
82. The canned salmon industry on the Pacific coast produced in 1929, 95·3 per cent of the marketed value of Canadian salmon and 99·9 per cent of the domestic canned product.
83. Of the total Pacific salmon only 12·5 per cent is marketed fresh or frozen, whereas in the Maritime Provinces and Quebec more than 97 per cent of the production is sold fresh or frozen.
84. The British Columbia salmon canning companies sell less than three per cent of their output in a fresh or frozen condition, but about 10 per cent is in the form of by-products (meal and oil) or of cured products.
85. Little attention has been paid by the salmon canners to the development of by-products from salmon waste.
86. Identification of the packers of canned goods is only possible when the name is plainly printed or embossed on each tin, and this is essential for packer, distributor and consumer.
87. Rigid enforcement of inspection acts is strongly urged by many canning companies.
88. Japanese and Siberian salmon competition is an increasingly serious factor in export markets. This applies to every class of British Columbia salmon, but chiefly to pinks and chums.
89. The lobster canning industry is distributed in the four Atlantic provinces in the following order of importance: Nova Scotia, 56·4 per cent; New Brunswick, 23·9 per cent; Prince Edward Island, 14·3 per cent; Quebec, 5·4 per cent.
90. In 1929 more than 40 per cent of the total value of all Canadian lobster marketed was derived from sales (almost exclusively in the United States) of live lobsters.
91. The opportunity to ship live lobster economically depends largely upon the distance from the Boston and New York markets, and upon available transportation facilities for fast and efficient shipment. Fresh lobster from New Brunswick and Nova Scotia therefore obtains highest prices, and Quebec and Prince Edward Island show relatively small sales.

92. Canada produces more than 90 per cent of the world's supply of canned lobster, but this apparent monopoly is not real owing to intense competition and substitution of canned crab emanating from Japanese and Russian sources.
93. Lobster seasons and districts favour packer operations rather than the live lobster trade through the creation of gluts in the latter. The present system appears to be well adapted to "berrying" and climatic factors, but is not co-ordinated with the economic requirements of the industry itself.
94. Lobster packers who have had experience with the Government Lobster Collection Service do not consider it a benefit to the industry, for it results in unfair discrimination and causes gluts on the Boston market.
95. Lobster pounds are considered useful, and packers believe they should be privately owned.
96. The six-ounce can is the size most used by the lobster packers.
97. The majority of packers sell their product without a brand name, although 75 per cent believe identification of each can essential to the maintenance of quality.
98. Packers stress the need of adequate and strict inspection, since standardization of quality is an incentive for increasing demand.
99. Many lobster canners, particularly the larger companies, have developed the manufacture of by-products from waste material to an appreciable extent.
100. Miscellaneous canned fish products were produced, in 1929, to a value of more than $2,000,000, of which 60 per cent comprised sardines, 18 per cent pilchards (largely from British Columbia), 14 per cent clams, together with a small production of haddock, cod, and other fish products.
101. Canners in the Maritime Provinces and Quebec produce over three-quarters of the miscellaneous canned fish products.
102. The sardine industry is located entirely in New Brunswick. Its products are sold throughout Canada and in almost every country in the world.
103. The Sardine packers feel that closer supervision of fish canneries and rigid enforcement of the provisions of the Meat and Canned Foods Act would be beneficial to the industry as a whole.
104. The clam canning industry markets its products under brand names and places particular emphasis on quality.
105. Standard sizes of cans, as provided for canned lobster, are required by the clam canners.
106. Inspectors recommend adoption of the Knight grading system for canneries.
107. Retail grocers desire canned fish products put up in smaller cases, and stress the need of uniformity of quality and of quantity in each tin of canned fish.
108. Retailers are often ignorant of the fact that the sardines they carry are imported.
109. A total of 86 brands was mentioned during the course of the survey.
110. Other canned fish are extensively imported, but there is decided lack of knowledge among the trade regarding which brands are domestic, and which are imported.
111. Products of the fish curing industry in 1929 were valued at almost $9,500,000, less than half of which was produced by curing establishments, the remainder being cured by fishermen, or in other branches of the industry.
112. An overwhelming proportion of the industry's output is exported, chiefly through brokers.
113. Diversification in the industry is probably the only procedure which might tend to mitigate the effects of current seasonal fluctuations.

114. One-third of the curing plants make no use of waste products, while the remainder sell them principally to reduction plants, glue factories, farmers (for use as fertilizer) and fishermen (for use as bait).
115. Difficulties are still experienced by the fish curing industry due to the chemical composition of salt.
116. More uniform inspection of curing plants throughout the country is reported to be needed.
117. The need for better grading of cured fish was expressed both by inspectors and producers.
118. Smoked fillets were found in the greatest proportion of retail outlets, while the distribution of finnan haddie is almost equally wide. Kippers, cod, and salt herring are also relatively popular, though the market for the last two is strongest in the Maritime Provinces. Smoked goldeyes were found in a fair proportion of Prairie Province outlets.
119. Markets in the United States already absorb enormous quantities of the fresh fish produced in Canada. Possibilities of expansion depend upon the maintenance of high quality fish in the New York and inland markets. In other countries prospects are not favourable for exports of fresh fish, chiefly owing to transportation and transport difficulties.
120. In many places, particularly in the Prairie Provinces, it is hard to procure fresh fish at any time.
121. Fresh fish appears to be the logical cornerstone upon which to build a policy of expansion in the fishing industry.
122. Familiarity with, and appreciation of, fresh fish in season tends to promote the desire for the canned or cured forms of the same fish out of season.
123. Fish oil is the most important product manufactured in fish reduction plants, production in 1929 amounting to 4,500,000 gallons. Fish meal is second in importance, followed by fertilizer and other miscellaneous by-products.
124. The industry is situated chiefly on the Pacific coast where the production of herring and pilchard fish meal, and fish oil constituted almost two-thirds of the total Canadian production in 1929.
125. The principal markets for fish by-products are outside Canada.
126. The domestic market requires education in the value and uses of fish meal and fish oil.
127. Holland and Germany present possibilities for market extension.
128. Practically no cod liver oil is now refined in Canada.
129. The bulk of the world's supplies of cod liver oil now comes from Norway and Newfoundland.
130. Prejudice against the Canadian fish oils could be reduced by permitting labels to read "made from edible oils" rather than "made from fish oil" as at present.
131. Inspectors believe that specific standards and definite grading of fish meal and fish oils should be adopted.
132. Fish subjected to improper cold storage deteriorates and reaches the market in such condition as to destroy consumers' zest for a regular fish diet.
133. Storage holdings of fish in Canada tend to be too long, especially in summer.
134. Atlantic fishing interests desire the location of numerous subsidized cold storages.
135. A reasonably wide distribution of cold storage plants already exists in the country.
136. Quick freezing prevents large water crystal formation in flesh, and so preserves the quality intact.
137. Quick freezing processes are numerous and still in the experimental stage.

138. The complicated process and patent situation, and the need for rigid temperature control of the product after freezing, now retard the widespread adoption of quick freezing technique.
139. Quick freezing facilitates packaging and branding of fish.
140. Many requirements have to be met by the packages for quick frozen foods. Paper-board cartons in conjunction with preliminary wrapping of the product in some transparent, moisture and vapour proof material seem to fulfill these conditions best.
141. Most retailers at present lack adequate low temperature display and refrigeration equipment to handle quick frozen fish properly.
142. This equipment is still largely in the experimental stage, and is expensive.
143. Dry ice has many advantages for use as a refrigerant for small shipments to retailers, etc., but at the present time the price is prohibitive and availability poor.
144. Financing of retailers' purchases of low-temperature display and storage cabinets by the producer of quick frozen products has been tried, and seems to be practicable only for the large corporation.
145. Improved methods to prevent deterioration are needed in the transport of fish from the fishing grounds to shore.
146. The majority of suggestions regarding transportation received from fishing interests involved railway rate reductions, particularly on express shipments originating in the Maritime Provinces.
147. The present railway traffic equipment in Canada appears adequate to handle fish traffic properly.
148. Of the fish (other than canned) carried by rail in Canada in 1930, 35 per cent was shipped by express, and the rest by freight.
149. Of the fresh fish loaded by the Canadian National Railways during 1930, 84 per cent was carried by express. More than half of the fresh fish shipped to the Province of Quebec, however, was carried by freight.
150. Adequate inspection is necessary to raise the position of fish to its appropriate level in the consumer's market. Existing legislation has not been successful in effecting this.
151. Some confusion exists between the present laws and the authority for their enforcement. Some districts appear too large to permit the thorough administration of the inspector's duties.
152. In Great Britain, a particularly efficient system of distribution enables fresh fish to reach consumers 24 hours after it is caught. Important elements in the plan are regularity of supply, and the existence of numerous specialized fish outlets, located in close proximity to consumers' homes.
153. The British Trawlers' Federation provides extensive advertising aid for the industry, which is also assisted by the British Empire Marketing Board.
154. The United States industry, due to lack of integration cannot be regarded as a unit. There are several examples of excellent fish merchandising done by individual firms and organizations, but lack of a co-ordinating plan for the industry as a whole is a serious drawback to increased consumption.
155. Advertising is employed by national and state organizations, as well as by individual firms.
156. Consumption of fish is great in Japan, and habits of the people make aggressive effort in the domestic market unnecessary.
157. The export sales of crab meat are assisted by promotion on the part of the Japan Crab Cannery Association. Indications point to the fact that in the near future, Russia will refuse further concessions to Japanese packers, and will produce its own crab for export.

158. Fish is merchandised comparatively inefficiently in Newfoundland. The cod liver oil industry, however, is an outstanding exception in this respect.
159. Norwegian cod liver oil is widely advertised both in domestic and export markets. The government co-operates in an " Eat More Fish " campaign.
160. Fish advertising in Canada at the present time is negligible, and consists almost entirely of price advertisements.

(B) INTERPRETATIVE CONCLUSIONS

The Heritage

The disjointed condition of the Canadian fishing industry, amply shown by the preceding evidence, is a heritage, in part, of the geographical dispersion of resources, and in part of the complete lack of intercommunication in the days when each of its main branches was first established. It is not a new problem, but has become steadily more acute over a period of many years. As almost invariably occurs when an industry finds itself in such a condition, return for effort and investment in every phase tends towards the vanishing point, and new capital cannot be directed into it for necessary improvements and additions to equipment, plant and organization. (There are rare unimpressive and temporary exceptions, such as the financial reorganization of certain salmon canning companies during the days of speculative prosperity.)

Integration Needed

Many of the difficulties from which this industry now suffers would have been entirely obviated had there been a comprehensive program indicating to the various elements of the industry how to work, each in its own best interests, coincidentally with the best interests of the industry as a whole and of the nation. So far there has been nothing to point the way to this identity of interests between the individual and the group, between the group and the industry, between the fisherman and the producer, between the producer and the trade, between the industry and the Government.

It is thus apparent that some careful planning for the industry as a whole is essential to its future welfare. The program which results from such foresight should not be a plan, however, for the latter involves the establishing of definite statistical objectives in advance, while the former merely indicates the course along which the advance should take place and leaves the questions of details to be worked out as experience, self-interest and the public interest may dictate.

Obviously, to put such a program into effect within a short time is impossible, even if the details could be worked out at the beginning. The practical method of attack, then, is to define certain elements of the ultimate program, and to implement these in so far as possible. The ultimate goal is to secure interdependence between the various elements of the industry, while at the same time maintaining and advancing the independence and self-interest of each unit concerned. Moreover, the implementation of parts of the program as they are brought to light must depend upon the attainment of substantial unanimity among all the elements and interests concerned. Failure to attain such unanimity of its major elements in the industry will involve at least the partial continuance of the present disjointed condition.

Positions and Problems of the Various Elements of the Industry Outlined

In the following paragraphs are outlined the present positions of each of the major elements in the industry, the fundamental problems confronting them, and suggested solutions. Specific recommendations are reserved for Chapter XVIII.

(1) *The Fishermen*

This survey has produced no evidence that the fishermen of Canada are inefficient or lacking in self-reliance and initiative. Wherever conditions permitted, the exercise of these qualities has been strikingly demonstrated. The relative isolation of the Gaspe fishermen, together with their maintenance for many years of trade channels almost independent of those of the rest of the industry has left them free either from the accusation of sub-standard methods or from any resulting marketing problem. The same may be said, with any slight adjustment, of the long established curing industry centred in Lunenburg, N.S. In the more organized salmon canning industry of British Columbia, fishermen have only rarely been unable to make a reasonably fair return on their effort.

Those engaged in the fresh water branches of the fishing industry (with negligible exceptions), particularly in Ontario and the Prairie Provinces, are to be highly commended for their self-reliant development of the production and especially the distribution system now prevailing (even though, to some extent, their winter catches, air frozen in very low temperatures, have had the advantages of natural quick freezing). Their surpluses are marketed in the United States under relatively buoyant demand conditions. There are therefore no serious problems of marketing requiring immediate governmental attention or action with regard to inland fisheries.

In some districts where the situation of the fishermen has been exceptionally difficult, it has been solely because of their dependence, as scattered units, upon the existing machinery of what may be termed the Atlantic fresh and cured fish trades. The degree to which these trades have become disorganized has been no more the fault of the fishermen than it has been in any other single element in these trades. At one time devoted almost wholly to curing operations or to the production of cured fish for world market which then demanded standards which are to-day inadequate, they have seen this trade slipping away from them and they have taken what appeared to be the only alternative, namely, selling their output to the fresh fish trade. If they have been unreasonable in their demands in recent years, such unreasonableness has in great part been due to the feeling that they had no voice in the matter of the industry's objective as a whole or in the matter of indicating an objective to the industry as a whole as it affected them. Such defeatist suggestions as the uprooting of these fishing settlements have naturally been countered by antagonism to the distributing companies' abortive efforts at co-operative marketing. All they have asked for is to be given their rational share and say in the rehabilitation of an industry in which their functions are often the more important of any other part. This could not be better illustrated than by quoting one of the opening sentences from a letter sent by the President of the United Maritime Fishermen at Petit DeGrat, Richmond county, N.S.: "It is gratifying to feel that we fishermen are so far recognized as an integral part of the fishing industry that no complete or fair survey of the situation can be made without their/our co-operation." It is to be hoped that the policy of the Government and the program for the industry will accord to the fishermen and the fishermen's organizations an important voice and part in any constructive measures towards rehabilitation which may in future take place.

(2) *Producing and Shipping Companies*

These companies together form one only of the many links between fishermen and consumer. While having no influence over succeeding links, they have undoubtedly fulfilled their particular functions as efficiently as could be expected in view of the disjointed condition of the trade. These conditions, over most of which they had no control, have made their respective functions relatively

unprofitable. In the face of these difficulties, the leaders of this element have been doing everything in their power to find a solution to the problems of the fresh fish trade, on the basis of co-operation with and not antagonism to the fishermen. If given a reasonable opportunity, they are quite capable of doing their part in accomplishing this end.

(3) *Wholesalers and Their Intermediaries*

These middlemen of the fish trade perform specialized functions, some of which have arisen to counteract the present disjointed condition, which exist because they are necessary and will remain unchanged so long as nothing is done to improve the system itself. These should continue to contribute useful service in the marketing progression, be they brokers, wholesalers, commission merchants, etc., and will have nothing to fear from any reorganization which may take place. The lines along which any reorganization is indicated should provide full encouragement to develop their own special markets with the independent retail trade and fish stores. The lower cost of retail low-temperature refrigeration units, which may be made possible by the action of the retail chains, would open up distinct possibilities for the true middleman to increase his activities among other branches of the retail trade and profitably so—thus maintaining the desired balance. The uneconomic middleman, however, would automatically disappear in time.

(4) *The Curing Trade*

The curing trade is a permanent though less important part of the industry as a whole. Its present condition is marked with the two extremes, according to the locality selected, of reasonably prosperous and acutely depressed conditions. The means by which the latter may approach the condition of the former lies chiefly in the measure of their ability, supplemented by such reasonable Government and other assistance in the way of research and education, to attain economically a standard of preferred cures. If even these markets continue in future to shrink, other measures will have to be taken, either in the direction of ready-to-serve cured products in canned form or in bringing these isolated localities effectively within the system of fresh fish distribution.

(5) *The Canners*

In view of the fact that the sardine branch of this industry is suffering no immediately serious problems except those which are being already tackled by competent leadership, it is sufficient for present purposes to limit discussion to the salmon and lobster branches of the canning industry and leave other minor subdivisions to be dealt with as later circumstances may dictate.

The chief problems of the salmon canning industry, from the evidence received in this survey, are those of: too great proportion of pinks and chums in relation to sockeye as regards the supply of raw material upon which the canneries depend; difficulty in identifying the product of the reputable canners from that of other less careful members of the industry; dependence on extenrnal markets for an inordinate proportion of its output in the face of intense and increasing competition from Russian (Siberian) and Japanese sources. The Government is already doing everything possible to bring about a long-term solution of the first of these problems in co-operation with the Government of the United States, but both are hampered by constitutional obstacles placed in the way of this obviously advantageous end by the State of Washington. The second of these problems would appear to be solved by compulsory embossing of identification marks on all tins containing fish and fish products. Such marks should consist of the name of the packer and place at which packing takes place, also the words "Made in Canada," but not necessarily the date of canning. Inclusion of the latter at times of unusually big runs or catches might tend unneces-

sarily to disrupt the trade. It has not been demonstrated in this survey that properly canned fish, particularly canned salmon, should be sold within a year of packing. The third problem must be regarded as only susceptible of long term solution.

The lobster canning division differs from the salmon branch, first, because it is composed of smaller producing units; secondly, because its conservation problems are not so acute; thirdly, because of the higher proportion of business done other than canning; fourthly, because of the absence of a variety of species. Its chief problems are those of differentiating between the reputable and other canners and of achieving some means by which the reputable canners may make a joint effort to secure greater consumer acceptance of and desire for their respective brands. The first problem may be solved, at least partially, by the measure proposed with respect to the salmon canners in clause (5) above. The second problem would appear to depend for solution upon some "closed" association of reputable canners with a "covering" association with strict rules for the acceptance and retention of membership enforced by the association itself.

(6) *Fish Reduction*

This branch of the industry has grown up as a necessary adjunct to other main operations and also owing to an increasing demand for its products in external markets since the beginning of the past decade. Its real importance to the program of integration lies, first, in the means which it provides for true conservation, namely, economic use of waste materials, and secondly, as a potential factor in increasing the return and profit on effort and operation respectively in small settlements and in small producing units of the industry—if, as, and when, scientific research may develop less pretentious equipment for efficient reduction than now in commercial use.

(7) *The Retail Trade*

This element has many subdivisions, all of which have been fully discussed elsewhere in this report, and particularly in Chapter XV. The only interest of any one of these branches in the handling of fish, and one which the report has shown is conspicuously lacking, is in the regular and profitable supply and service of a satisfactory product (or products) to consumers. The large proportion of retailers in all branches who dislike handling fish, particularly fresh and frozen fish, is chiefly due to the relative concentration of consumer demand (in such limited degree as now exists) on one day in the week. This factor of irregular demand makes the retail sale of fish in some instances a relatively unprofitable operation and the satisfaction and retention of customers difficult and doubtful.

The fresh fish trade as it exists at present is designed chiefly to serve the independent grocers, butchers and fish stores, but the rapid growth in the importance of the retail chain trade in the past decade has proved to be a disturbing factor to the whole established fresh fish trade. The recent developments both of quick frozen processes and of low temperature retail refrigeration equipment have opened up distinct possibilities for turning this disturbing factor into the best means for stimulating a regular public demand for fish, to the advantage of other retail subdivisions and of all other elements in the fishing industry. Attention is directed to the last part of Chapter XV for detailed explanation of this statement.

The Quebec market for fish, as for so many other commodities, is recognized as being radically different from others in the Dominion. Thus, though the consumption of fresh fish in households is second only to the Maritime Provinces, yet the consumption of both cured and canned fish in this area is limited. The total consumption of fish of all kinds in Quebec is therefore very low. On the other hand, three-quarters of the dealers in this province prefer to handle fish

rather than meat, chiefly on the ground that they thereby make greater profits. Furthermore, the criticism that it is difficult to get fresh fish was made by more consumers in this area than in any other. The conclusion appears to be, therefore, that knowing that the majority of consumers will eat fish at least once a week, the retailer is content to profit by this, and to turn it to his pecuniary advantage. That half the fresh fish shipped by the Canadian National Railways into the province moves by freight is an indication of the dealer's carelessness as to the provision of the highest quality fish for this market, and of his desire to make all possible profits from the business.

(8) *Domestic Consumers*

The public of Canada, and indeed the public of any country, may be permanently induced, by advertising or other means, to purchase larger quantities of fish and to do so more regularly—*only* as the supply of fish is made available to them in the forms and of the species which they desire and when these forms and species are delivered to them in a condition of assured quality. The assurance of being able to do so has been lacking, except in those instances where no marketing problem exists. *After* such assurance can be provided by the industry and the trade, it is necessary to make such assurance count. This means advertising, not solely of the price variety which this survey has shown to be prevalent, but indicating the improvements which have taken place, or are taking place, or are about to take place, in the technique of processing and distributing of fish, as well as in the dietetic, medicinal and other values of the fish themselves. It is then necessary to teach the public how to prepare fish of different species in a variety of palatable forms. It is not, normally, the duty of the Government to provide such advertising for the product of any one industry. Such advertising on the part of the Government can be justified as providing the impetus to a well-defined policy of rehabilitation of that industry in the general public interest. It is clear from the evidence in the latter part of Chapter XVI that the advertising now done by the industry itself is of wholly negligible proportions and as such is chiefly limited to price advertising. On the other hand, it should be remembered that many of the industry's branches have been unable to afford such expenditures, in view of their disjointed condition, and, furthermore, would have received little benefit from doing so owing to the difficulties and irregularity of supply. There would therefore appear to be strong justification for advertising assistance on the part of the Government, in such forms as it may deem to be in accordance with its general policy. Such assistance should be made conditional upon substantial unanimity in the industry with respect to that policy, as well as by definite assurance by the industry as a whole and its respective branches that they will make every endeavour to carry out their shares in the program as outlined or as later determined.

Even a small increase in the domestic consumption of fish would produce effects which would tend to carry the movement still further, gathering momentum on its way. The chief of these effects are:—

(*a*) Consumer demand would spread more evenly over the days of the week other than Friday.
(*b*) This would enable the retailer to reduce his present mark-up, since his overhead, which has to be carried at the present time largely on Friday's business, would be more evenly spread.
(*c*) The retailer's purchases of fish would be made more frequently, thus ensuring a better supply.
(*d*) It would be worth his while to install better equipment in order to handle the greater volume of business.

These and other factors would react with renewed force upon the consumer, and would still further consolidate the position of fish as an article of daily diet.

(9) *External Markets*

Relatively greater attention should be paid by the industry and its various branches to the prospectively large market for Canadian fish in the United States. It has already been pointed out that that country's supply of fish, in relation to its demand, has practically reached the saturation point. The present tariff difficulties in this regard have not proved unsurmountable even to the existing large degree of Canadian exports south of the border. Such difficulties, in the opinion of at least one outstanding authority in the United States fishing industry, will be materially lessened in the not too distant future. This however, is not the only available external market for the fish surplus of the Dominion, since it is limited chiefly to the fresh and quick frozen article (to some extent cured, etc., also). Extensive suggestion and information on the most important of these overseas markets are given in Appendix B and are available in more extensive form in the files of the Department of Trade and Commerce. It will be noted that certain recommendations with respect to arrangement, supplementing and publication of this information, for the benefit of various branches of the industry, are made in Chapter XVIII.

(10) *Other Elements*

Other elements, which need only be touched upon here, are those who supply the working and long term capital for the industry's operation (chartered banks and investment houses), public and other carriers who transport the products of the industry (railways and steamship companies), and those who supply the mechanical and other equipment for the industry (manufacturers of refigeration units, etc.). That these elements are now doing all that can be expected of them, and would show considerable increased interest if a definite policy and program were even accepted and admitted by the industry, appears somewhat obvious.

(11) *The Government*

The position of the Government with respect to the industry has always been surrounded with constitutional obstacles in the absence of any clear definition of the respective functions of the Dominion, the provinces and the municipalities. In so far as these obstacles permitted, it would appear that successive Governments have done all that could be expected of them. In may be said in regard to the Government of the Dominion that more has been demanded by the industry and done by the Government than should have been reasonably expected, in view of the absence of any concerted effort on the part of the industry itself to solve its own problems.

CHAPTER XVIII—RECOMMENDATIONS

The following recommendations arise directly from the foregoing conclusions and from the evidence contained in the main body of the report:—

1. That the Minister of Fisheries consider the announcement of a fiscal policy with respect to fisheries, and all industries and trades dependent thereon, based upon the following principles:—
   (*a*) That the Government refrain from levying any taxation (other than that which applies to all industries and groups) particularly directed to those engaged in the production, processing and marketing of fish, until such time as the industry has attained a reasonably prosperous and self-reliant status.
   (*b*) That consideration be given, subject to unsurmountable constitutional or other obstacles, if any, to the ultimate withdrawal (within a specified period, announced in advance) of the fishing bounty, except any that the Government may decide to apply to destructive species, and that the sum so released be devoted by the department to assist in the execution of educational and other measures directed toward the permanent improvement of the industry.

2. That the fishery conservation policy of the Government adhere to the following general principles:—
   (*a*) That, in general, conservation policy be continued as at present, but with greater emphasis, to those waters and species in connection with which the problem of maintaining a steadily increasing future supply is most acute. (This applies in particular to salmon, more especially on the Pacific coast, and above all in relation to the sockeye salmon.)
   (*b*) That, in general, conservation policy shall be directed to *restriction* of seasons, locations, and of licences (partly as a means of securing adherence to and respect for regulations), but not of the gear or equipment used. Only such reasonable and effective regulation shall be exercised, in the latter instance, which may prevent uneconomic destruction of the species, or any serious deterrent to the quality of the fish caught.

3. That the policy of the Department of Fisheries with respect to the external market for fish and fish products shall adhere to the following principles:—
   (*a*) That classification of the information concerning external markets contained in Appendix B of this report and in the more extended material now on file with the Department of Trade and Commerce be undertaken by that department.
   (*b*) That the Department of Trade and Commerce consult with the Department of Fisheries and the Department of Marine as to the best measures which may be taken towards supplementing the aforementioned material with additional information, pertaining to each main exporting branch of the fishing industry, regarding the export market requirements and existing steamship facilities, rates, routes and schedules.
   (*c*) That when such information is available and properly classified it be published in a series of reports for the benefit of these main export divisions of the Canadian fishing industry.

(*d*) That the information thus made available to the Government and to the fishing industry be used (in such manner as the Department of Marine, in consultation with the Department of Fisheries and the Department of Trade and Commerce, may decide) to initiate discussions with the various steamship companies operating from or to Canadian ports, relative to such adjustment or improvement of their services, schedules and facilities, as may be undertaken in their own interests and in those of the exporting divisions of the Canadian fishing industry.

(*e*) That consideration be given by the Government, at a later date, to the periodic revision, supplementing and improvement of the aforementioned publications.

4. That, while it is realized that the Dominion Government has made every effort to conclude an international sockeye salmon treaty, yet no possibility of promoting the ratification of this treaty should be overlooked.

5. That the Biological Board of Canada be urged to direct greater concentration upon the solution of practical problems of fisheries research.

6. That consideration be given by the minister to the advisability of a reference to the Board of Railway Commissioners for Canada of the whole question of railway rates and tariffs respecting freight and express shipments of fish and fish products, particularly such matters as are suggested in Chapter XIII of this report, and that the board be requested to examine such rates, tariffs and other pertinent questions, to determine whether or not a reorganization of such rates and tariffs should be undertaken to remove or adjust existing anomalies, and to take such action in these matters as they may determine to be in the national interest, in the interest of the efficient operation of the railways, and in the interest of more efficient distribution of Canadian fish and fish products.

7. That the Canadian Fisheries Association be broadened in scope so as to include adequate representation of all the major elements dealt with in Chapter XVII, Part B, that such added representatives should be acknowledged leaders in the various divisions and subdivisions of the industry, of the fishermen and of the trade—that membership in and the privileges of the association should be limited with certain obvious exceptions (such as banks, railways, etc.), to those elements and those leaders who have each approved the program and policy as determined by the Government and by the Fisheries Association, which will undertake to carry out their respective parts of the program to the best of their ability, which will undertake to abide fully by its rules and regulations, and which will undertake to contribute to the expenses and promotional activities of the association when such policy and activities shall be determined upon by the association.

8. That the Department of Fisheries conduct a campaign of education with the following purposes in view:—

(*a*) To acquaint the Canadian people with the national importance of the fisheries industry;

(*b*) to broaden the day to day consumer demand for the different varieties of fish and fish products;

(*c*) to provide the impetus for the various interests in the industry to advertise their individual products, thereby giving the necessary point to the Government's own publicity campaign.

9. That the information included in and pertaining to Chapters VIII, IX and X of this report be made available to the trade.

10. That every encouragement be given to the formation of a Lobster Canners' Association, which shall be composed of responsible canners interested only in the welfare of the lobster canning industry, that products of members of this association shall be identified as such, so that no opportunity shall be given for less conscientious canners to disrupt the trade, that embossed identification marks be required on every can.
11. That the Biological Board of Canada be requested to carry on experiments with a view to developing small fish reduction units suitable for establishment in the less important fishing centres; and that educational work be undertaken by the Government to disseminate in the domestic market the knowledge of the value of the by-products of the fishing industry.
12. That every effort be made to extend the degree of diversification practised in the curing industry, and to raise the standard of curing to the level of preferred cures.
13 That means should be sought for reducing the number of brands of canned salmon.
14. That encouragement should be given to Fishermen's Co-operative Unions for the purpose of obtaining their supplies cheaply and of improving their standards of production.
15. That overlapping of the inspection acts, as outlined in Chapter XIV, should be adjusted; that inspection service by the proper authorities should be extended to cover fish reduction plants and retail stores; and that inspection of packing, canning, curing and cold storage plants should be made more comprehensve and authoritative.
16. That the employment of express rather than freight for the shipment of fresh fish be encouraged.

Government
Publications

3 1761 11469251 0